Chemical Week

October 31, 1953

Price 35 cents

Management meets labor; each has its own oar, but they both pull together . . . . . p. 21

Synergistic trio breaks new ground; now it's "multibiotics" for nonprescription sale . . . . p. 39

New twists in chemical shipping; tailor-made trucks bid for tricky hauling jobs . . . . . p. 44

Keeping it clean underfoot; rug makers adopt dirt-repelling specialty treatments . . . . p. 48

Have reinforced plastics been overglamorized, oversold? Here's a down-to-earth outlook . . p. 61

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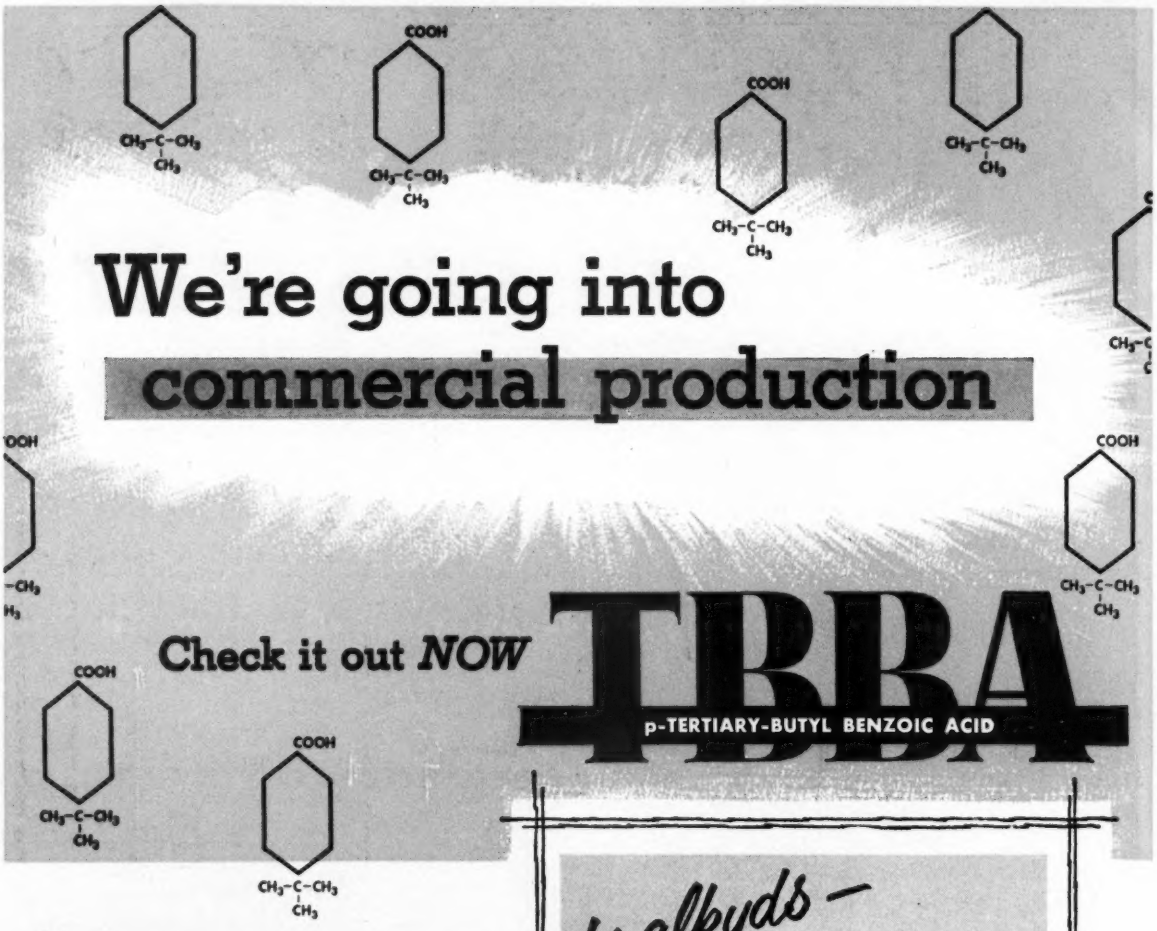

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Chemical Week

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The Reader AUDITED PAID CIRCULATION ABC *His Mark*

THE ABC that appears in the symbol at the top of this page stands for Audit Bureau of Circulations. The symbol itself is an emblem of cooperation, in which every subscriber to this magazine has an interest.

The Audit Bureau of Circulations is a voluntary, non-profit, cooperative association. It was founded in 1914 and now consists of 3450 advertisers, advertising agencies and publishers in the United States and Canada. This magazine is proud to be a member.

ABC originally was set up to help take the racket out of publishing, to eliminate the waste and guesswork then so prevalent in publishing and advertising, to establish order and confidence in place of the misunderstanding and misrepresentation that arose from unverified circulation claims and dubious circulation practices. Its mission was to protect the interests of both readers and advertisers.

THIS IT DID by first defining the term "paid circulation." Then it established standards and rules to govern subscription sales practices and records. Finally it set up an auditing organization to verify the claims and report the facts concerning the circulation of each member publication. It now maintains on that job a working staff of sixty-five full-time auditors. So the ABC symbol has become the hallmark of circulation standards and advertising values. Each member publication must maintain those standards if it wishes to retain its membership and display the ABC symbol.

This ABC audit is no perfunctory affair. When a business publication, such as this one, becomes a member of the Bureau, it agrees that the auditors shall have "the right of access to all books and records." Their inspection, therefore, may cover any part of its operations. Original subscription orders, payments from subscribers, paper purchases, postal receipts, arrears of payments, and many more items are painstakingly checked by the auditors. In many instances they go behind the records to seek verification from subscribers themselves as to the terms of their subscriptions.

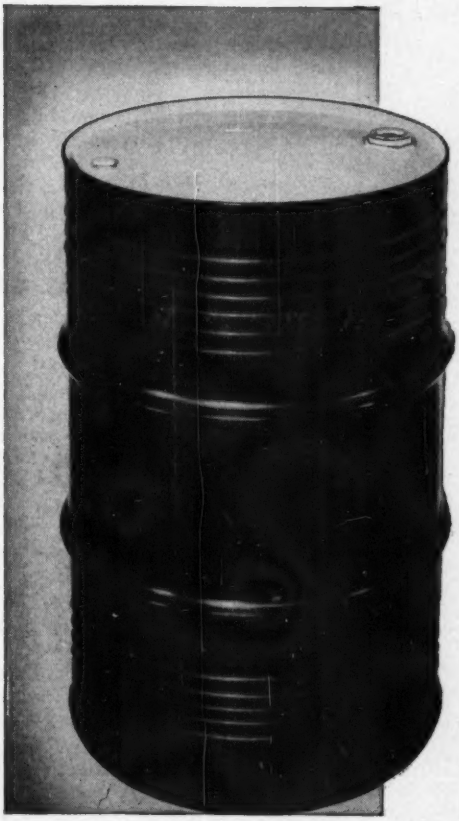
IN DOING ITS JOB, ABC has created many values for both publishers and readers as well as for advertisers. That is because the publication that becomes a member of ABC thereby offers the strongest possible guarantee of its primary devotion to the interests of its readers. The function of a business magazine is to be useful to its readers. When this service is rendered by an ABC publication, it is constantly subject to the practical test of reader acceptance and approval. As each subscriber has the right to purchase or refrain from purchasing an ABC publication, that collective right confers upon the readers the power to say whether or not the publication will survive. Thus the report on its ABC audit provides the most direct assurance that a publication stays in business only because of a voluntary demand by readers who find its editorial service responsive to their needs.

Naturally, the editor of each business publication follows closely the score thus racked up by his paper in its ABC reports. In the scope and tone of his editorial coverage and treatment, in the selection and presentation of his editorial content, he must constantly labor to maintain and enhance the readers' acceptance of his efforts. That is why the editorial standards established by ABC publications set the editorial standards for all publishing. That is how the ABC constantly stimulates its member publications to become even more useful to their readers.

AND THAT IS WHY the ABC symbol has become the Mark of the Reader, a constant reminder that his willingness to pay for an ABC publication is the acid test of its value both to him and to its advertisers.

McGraw-Hill Publishing Company

Here's how and why U.S. Steel drums now provide greater product protection



●U. S. Steel Products has recently developed a cleaning and finishing process that eliminates a source of customer claims . . . product contamination. Through this new process, drums are now available which are free of all dirt, grease, scale and other residues which can contaminate your drummed product. In addition, the drums are fully inhibited against rust and corrosion which can also contaminate the drummed product and mar the exterior surface.

An important feature of the new U. S. Steel drum is that the rust-inhibiting phosphate coating is applied on an absolutely clean, scale-free surface . . . after the head, shell and bottom have been formed. This means a better drum for you because the phosphate coating completely covers all surfaces of the drum including the welded side seam . . . will not flake off when banged around . . . will effectively retard rust and corrosion on both the interior and exterior surfaces.

The thoroughly-cleaned, rust-inhibiting surface of the U. S. Steel drum permits the safe use of a wide variety of decorative finishes. Bright, contrasting colors may be used showing your name and trademark or slogan. The finish will last much longer because the phosphate coating and spray-painted surface insure longer life.

For the protection of the products you package and for longer lasting drums, be sure to get steel drums protected by the U. S. Steel process the next time you order.

UNITED STATES STEEL PRODUCTS fabricates Stainless, Galvanized, Tinned, Painted and Decorated drums and pails. Furnished in capacities from 2½ to 110 gallons, with a variety of fittings and openings to fit your particular requirements.

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OPINION . . . . . .

Suggestion for Crusade

To THE EDITOR: I think it's high time you sit down for a minute and think hard about the future. The chemical industry is contributing, at an accelerating pace, to the eventual downfall of our civilization. How? By saying, in effect, "Buy this cheap synthetic product, use it a few times and throw it away." Instead of having linen tablecloths lasting a lifetime, we have plastic mats lasting a year. Examples could be multiplied.

We have an economy not of thrift but of waste, and the chemical industry does its best to promote it by making it cheaper to exploit irreplaceable resources than to conserve what we already have. Will future generations thank us?

FRANCIS X. DUFFY
Cincinnati, Ohio

Mumble-Jumble?

To THE EDITOR: . . . We read in your U.S. publications a good deal about how you view your tariffs . . . and how you sneer at British "Trade not Aid" and Canadian duties . . .

Perhaps you should read the enclosed . . . from the Canadian Financial Post . . . It echoes my sentiments . . .

ANDREW L. MCGILLVARY
Saskatoon, Sask.

The diatribe, herewith:

"There is some new statistical mumble-jumble, which is supposed to show that the United States 'far from erecting barriers against imports has led the way' toward encouraging imports.

"The American Tariff League has just completed a study of tariffs in 43 countries, which indicates that in the U.S. the ratio of collections from customs duties to total value of imports is among the lowest of the major trading nations.

"And what do the averages really prove about U.S. tariff policy? Nothing. Absolutely nothing. They are a misuse of figures to prove a point.

"First, many goods enter the U.S. duty-free. The Bell Committee on trade policy put 55% of all U.S. imports in that category—many kinds of

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

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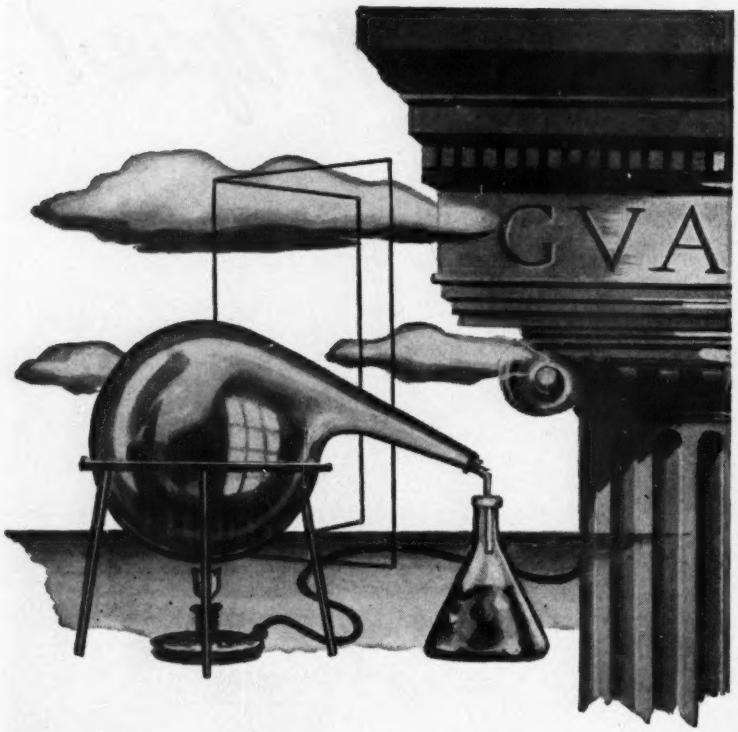

Helping chemistry open the door to tomorrow

THE chemical industry sets a fast pace of progress through research in creating new products and discovering new and better ways to help people have a better life.

Commercial banking figures in this, too. Sound financing is basic to industrial growth and progress. Guaranty Trust Company has a long experience in important chemical and other corporate banking.

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foodstuffs and raw materials needed to feed the American people and their factories. These pull the averages down.

"Second, what about the thousands of items effectively barred from the U.S. by high duties? And where do the figurative ramblings ever consider the goods shut out completely by import quotas? They never enter the calculations at all.

"Even if the ratios were significant for comparisons of trade policy they would still ignore the real pain of high U.S. protectionism. Denmark's cheese and Switzerland's watches may not count for much in U.S. averages. But they can be eat or not-eat for thousands of Danes and Swiss.

"The excessive protectionism of the United States hurts Canada and the rest of the free world. And the ugly fact cannot be covered by a thin coat of statistical shellac."—ED.

DATES AHEAD

American Oil Chemists Society, fall meeting, Sherman hotel, Chicago, Ill., Nov. 2-4.

American Council of Commercial Laboratories, annual meeting, Sheraton-Cadillac hotel, Detroit, Mich., Nov. 4-7.

American Drug Manufacturers Assn., research and development section, Westchester Country Club, Rye, N.Y., Nov. 5-7.

American Petroleum Inst., annual meeting, Conrad Hilton hotel and Palmer House, Chicago, Ill., Nov. 9-12.

National Fertilizer Assn., fall meeting, Atlanta Biltmore hotel, Atlanta, Ga., Nov. 16-19.

Chemical Market Research Assn. and ACS Division of Chemical Marketing and Economics, joint meeting, Shoreham hotel, Washington, D.C., Nov. 18-19.

Chemical Institute of Canada, 5th Canadian high polymer forum, London Library and Museum, London, Ont., Nov. 19-20.

Manufacturing Chemists Assn., midyear meeting, Waldorf-Astoria hotel, New York, N.Y., Nov. 24.

Chemicals Industries Exposition, Commercial Museum and Convention Hall, Philadelphia, Pa., Nov. 30-Dec. 6.

Chemical Specialties Manufacturers Assn., annual meeting, Mayflower hotel, Washington, D.C., Dec. 6-8.

American Pharmaceutical Manufacturers Assn., midyear meeting, Waldorf-Astoria hotel, New York, N.Y., Dec. 7-9.

American Institute of Chemical Engineers, annual meeting, Jefferson hotel, St. Louis, Mo., Dec. 13-16.

HERE'S AN IDEA FOR INTER-PLANT HANDLING...

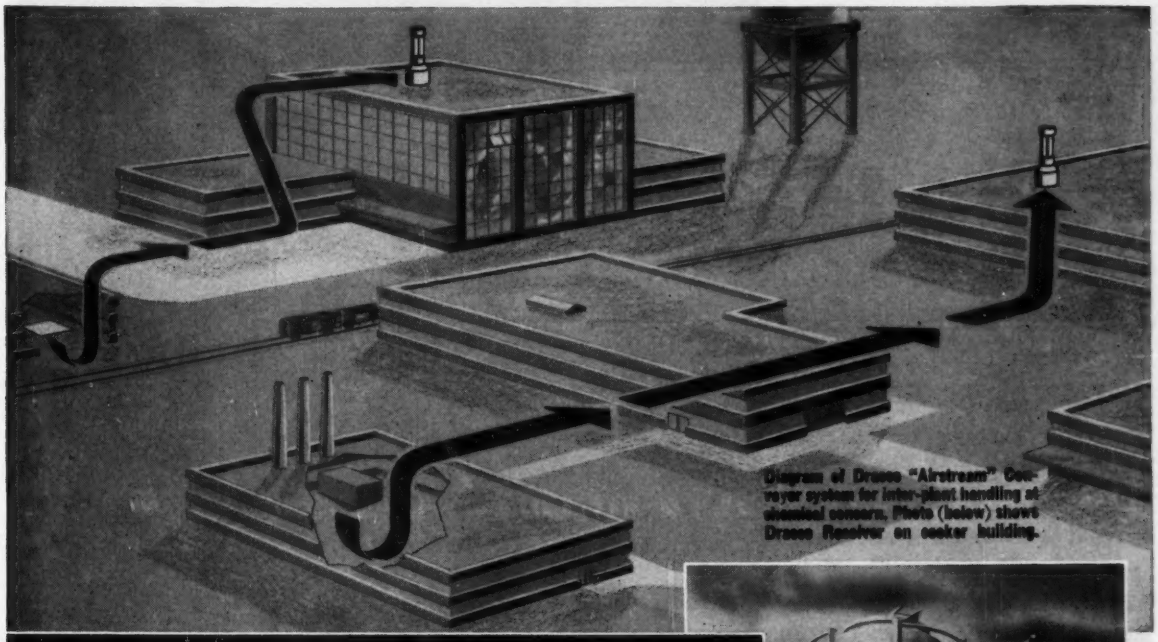
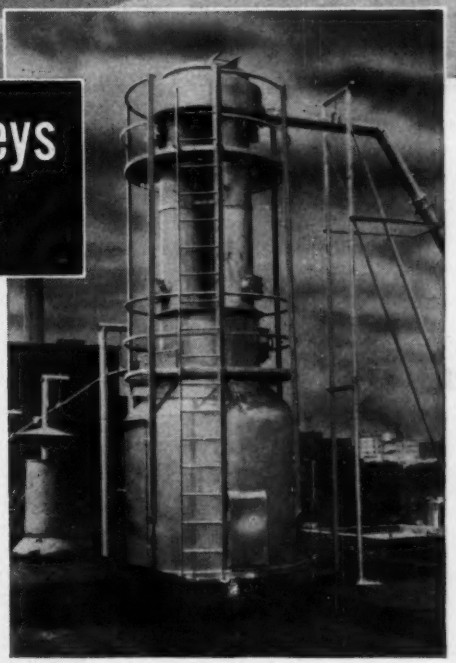


Diagram of Dracco "Airstream" Conveyor system for inter-plant handling at chemical concern. Photo (below) shows Dracco Receiver on cooker building.

Fast, Flexible *Airstream* Conveys Bulk Materials Efficiently



● Bulk granular materials can be transported *between* plants better, faster and at less cost with automatic Dracco "Airstream" Conveyors.

Dracco "Airstream" systems are profit-engineered and produce major dollar savings in labor, materials and over-all plant efficiency. Height, distance and existing facilities present no obstacle to this modern, high-speed technique.

The "Airstream" system recently installed at an Illinois plant producing biochemical feed supplements illustrates the advantages of this method. Two positive-action conveyors perform two distinct handling functions:

(1) Granular raw materials are conveyed 250 feet from warehouse to cooker building for fermentation.

(2) Dried, ground antibiotic feed supplements are moved 700 feet from feed plant to blending building.

The result is inter-plant handling that is sanitary, and economical.

Why not investigate how "Airstream" Conveying can cut your inter-plant handling costs? Call in a Dracco engineer—today!

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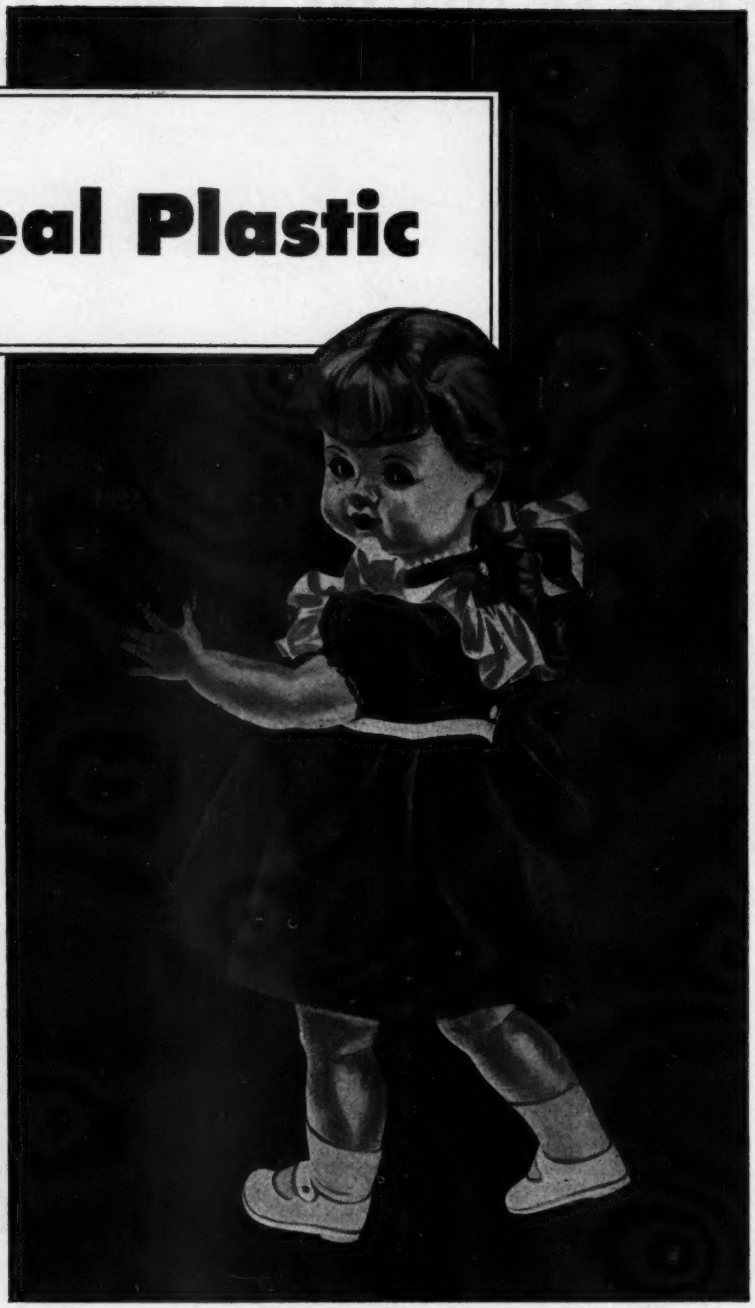

CHEMICAL PROBLEM...

. . . a leading toymaker wanted a tough, high-quality plastic that would withstand frequent handling and hard use by children, yet could be economically and easily formed into a realistic, mass-produced doll.

SOLUTION...

. . . Hercocel® A, Hercules' cellulose acetate molding powder. Low in cost, and noted for its impact strength and moldability, this super-tough thermoplastic permits intricate detailing in the doll's movable head, arms, and legs and is easily lacquered to obtain lifelike coloring.

RESULT...

. . . Ideal's Saucy Walker, the fastest selling doll of its class in toy retailing history. More than 350,000 were purchased in 1952, and the manufacturer anticipates the 1953 demand will exceed 500,000. For high-quality, fast-moving merchandise of all types—including housewares, fashion accessories, tool handles—more and more manufacturers are turning to low-cost Hercocel A. Write Hercules for details.

Ideal Toy Corporation's Saucy Walker doll, molded with Hercocel A, is available at better toy departments

Hercules' business is solving problems by chemistry for industry . . .

. . . rubber, insecticides, adhesives, textiles, paper, plastics, paint, varnish, lacquer, soaps, detergents, to name a few, use Hercules® synthetic resins, cellulose products, chemical cotton, terpene chemicals, rosin and rosin derivatives, chlorinated products and other chemical processing materials. Hercules® explosives serve mining, quarrying, construction, seismograph projects everywhere.

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053-11

NEWSLETTER

Eyes are on selling. It has been clear for some time (CW Newsletter, Sept. 12) that the major task confronting the chemical industries—now and in the foreseeable future—is not production, but marketing.

This was made abundantly clear last week as the Salesmen's Assn. of the American Chemical Industry sponsored its annual sales clinic, traded ideas on sharpening competitive selling, chewed a challenge that selling is "not merely a way of slicing up a pie, but also a way of increasing the size of the pie."

Though a few yards behind the actual firing line, commercial development men, meeting in Boston the preceding week, had their sales confreres in mind as they weighed factors entering into capital investment decisions. High and heavy on the list: sales potential.

•

Price-fixing took a further lease on life last week as the U. S. Supreme Court refused to rule on the constitutionality of the McGuire Act, which says that if a manufacturer makes a price agreement with one retailer in a state, all retailers in the state are bound by it.

Not seeing eye to eye are John Schwegmann, Jr., partner in the firm that appealed to the Court, and Eugene Beesley, president of Eli Lilly, one of the firms enjoining Schwegmann Bros. from reducing prices on "fair-traded" merchandise. Says Beesley: "It is a victory for the small, independent businessman and his right to play a vital role in our free, competitive enterprise system without being subjected to unfair competition from predatory price cutters." Says Schwegmann: "The nefarious fair trade law . . . raises the cost of living. It destroys the principle of free enterprise."

•

Sulfur isn't always sulfur. That's the gist of a U. S. District Court ruling in Texas. Judge Jack Roberts decided that sulfur recovered from sour gas is not subject to the brimstone tax of $1.40 a ton.

Phillips Chemical, which brought suit (CW Newsletter, Sept. 26), has—along with other sulfur recoverers—been paying the tax under protest. Payments to date total over $100,000.

•

Atomic power moved a step closer to reality last week when the Atomic Energy Commission picked Westinghouse to build a fair-size (60,000 kw. minimum) power plant. General Electric wanted to build a dual-purpose (i.e., both power and plutonium from uranium) reactor, but AEC, its plutonium needs looked after, is soft-pedaling the dual approach.

Still unanswered are when, where and how. AEC hopes the plant will be operating in three or four years, but its site has not been announced. Too, to what extent private capital will finance the nonatomic portions of the plant depends on whether industry will accept AEC's invitation to invest in the undertaking. That, in turn, hinges on industry's appraisal of atomic power cost—whether it can be sold at a profit.

•

Also ripe for a commercial try is shale oil, contends Union Oil's A. C. Rubel. Advocating immediate construction of a 10,000 bbls./day plant

costing $10-50 million, he said private industry should design, build and operate the plant without profit, and with the Dept. of Defense underwriting capital outlay and operating losses.

"The chemical industry," says he, "may be the first to start commercial development. . . . Shale oil at the retort, which may be produced at approximately $1.25/bbl., has an even greater value as a raw material than a finished product or a natural crude at a much higher cost; there is also a potential value as a source of acetylene."

But he'll have a hard time selling his proposition. General feeling is that costs are too high and processes are still too much in flux to warrant the outlay now.

•

Shovels scored the earth at two points almost 500 miles apart as two firms started building titanium metal plants.

Rem-Cru Titanium (Remington Arms, Crucible Steel subsidiary) broke ground for expansion at Midland, Pa.—near Pittsburgh. By early next year it will be turning out ten ingot-tons a day as against three today.

Earlier, Cramet (Crane & Co. subsidiary) broke ground at Chattanooga, Tenn., for its $25-million, 6,000 tons/year plant.

•

Also in the defense sphere was the move early this week by Mathieson Chemical to buy up to half of the stock of Reaction Motors, Inc. Part will be bought on tenders from present stockholders, the balance from the corporation itself, for $16 a share. The move will bring the two firms closer together in the field of rocket propulsion. (Mathieson is a major producer, through Matholin Corp., of hydrazine for rocket fuel.)

•

A vote of "no confidence" in Carthage Hydrocol was cast last week by United Gas Corp., one of the eight original sponsors of the ill-fated synthetic fuels project. Shortly after two other stockholders threatened to write off their Hydrocol investment as a complete loss (CW Newsletter, Oct. 24), United Gas did just that. Reconstruction Finance Corp., Hydrocol creditor, helped formulate United's plan to liquidate its $3,775,808 investment. The Securities & Exchange Commission must still approve; if it does, look for other Hydrocol stockholders to follow suit.

•

There's a lot of haggling in Houston over who should do what about pollution. County Attorney Burke Holman proposed a plan whereby the city would share with other communities the cost of a county-wide control authority. Some county and municipal officials are blowing hot, others are blowing cold—but it's a good bet that some action will be taken to tighten existing control laws.

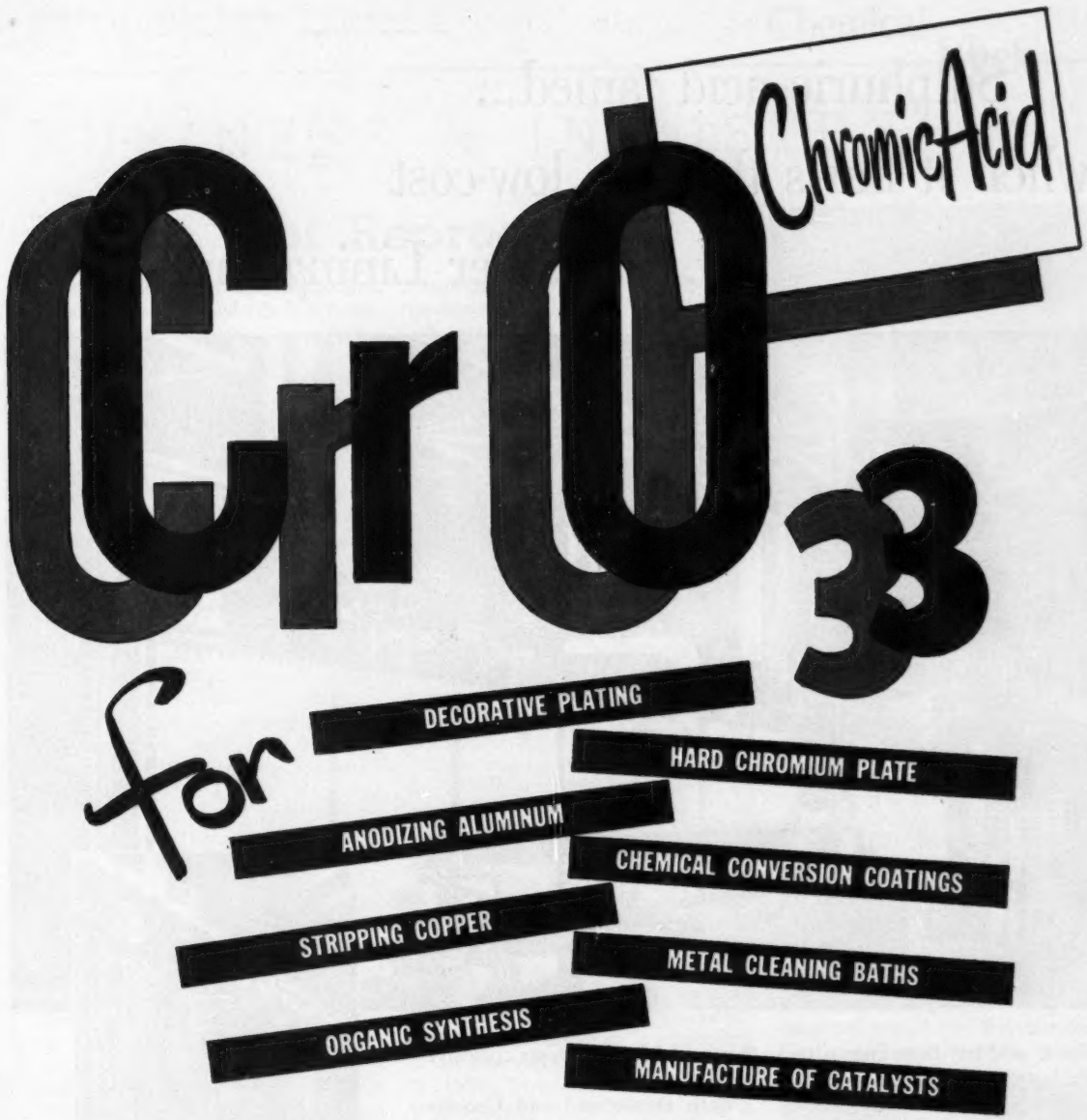
•

Not only past meetings, but future meetings as well are geared to a hard-sell theme (see p. 9). The Assn. of American Soap & Glycerine Producers has outlined its January annual convention program, set forth a tripartite approach: (1) what's new in cleanliness products; (2) what's next in business trends; and, significantly, (3) what's needed in sales strategy.

•

Less than a month after the tragic explosion at its Tonawanda, N. Y., plant (CW, Oct. 3), Novadel-Agene is full of plans for rebuilding. It has purchased 280 acres of land near Geneseo, N. Y., will start construction as quickly as possible.

. . . The Editors



Chromic Acid production in commercial quantities followed the development in 1926 of a practical process for chromium plating. Originally employed almost entirely for that purpose, Chromic Acid's use has not only expanded in the metal industry but has also proved valuable in many chemical reactions unrelated to plating or metal surface cleaning.

Mutual is keeping abreast of these expanded applications and today supplies a technical grade of Chromic Acid, assaying at 99.75% or better, to an ever-widening list of customers.

Chromic Acid is but one of the chemicals of chromium made by Mutual specialists in their production for over 100 years. Other Mutual products include Sodium Bichromate, Sodium Chromate, Potassium Bichromate, and Ammonium Bichromate.

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SINCE 1845

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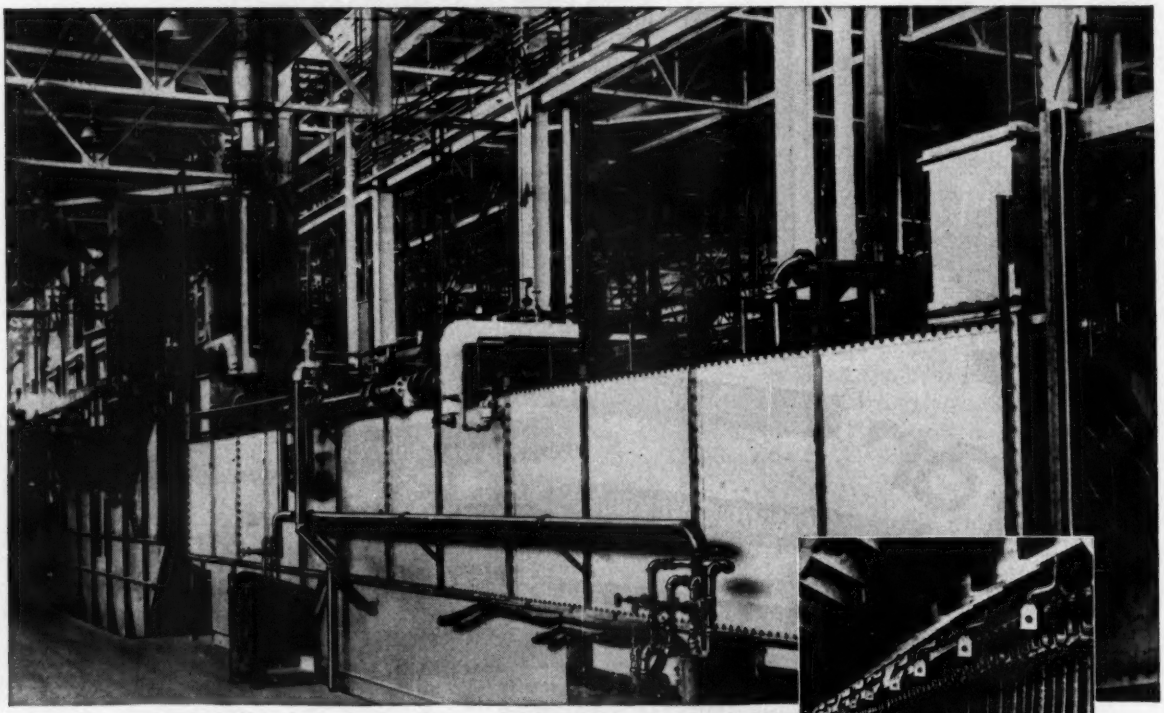
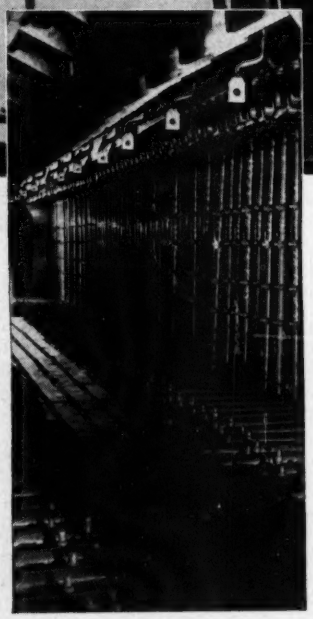
Sulphuric acid tamed... when it flows through low-cost U. S. Rubber Linings and Pipe





Sulphuric acid has been known to eat the bottom right out of production economies. But this large Midwestern plant is one of many that has found the economic way of handling this highly corrosive acid. They use United States Rubber Company Linings and Uscolite® plastic pipe and fittings.

The pickling machine in this plant handles a 10% to 15% solution of sulphuric acid. The process tank, pipe and pipe headers, and internal surfaces of housings and plates are lined with U. S. Permobond®. Pipe, street ells and nozzles are made of U. S. Uscolite, the thermoplastic that resists corrosive acids.

Both Permobond and Uscolite are extremely versatile. Permobond can be bonded or applied to any fabricated metal section, no matter how big or complex. Uscolite piping is amazingly strong, yet lightweight and easy to handle. Both of these "U. S." products provide savings not only in operating costs, but in maintenance as well. Call on any of the 25 "U. S." District Sales Offices, or write to address below.

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Praise, Not Reproof

It looked last April as though the National Bureau of Standards was being called into the woodshed for a brisk, Republican spanking; but it turns out this week that NBS has come out with a glowing, non-partisan commendation.

In general, the committee of nine scientists and engineers chosen by Secretary of Commerce Sinclair Weeks to investigate NBS and make out a report card on how well it's doing its various jobs has given the Bureau a clean bill of health. In fact, the group says that NBS activities should be stepped up, expanded, and supported with more funds so that NBS can fulfill its role in aiding the nation's still expanding industry and technology.

"Our highly industrialized society," the committee declares in its comprehensive, 100-page report on its five-month study, "requires a Bureau of Standards that is the finest that can be created. The Bureau's work must not be 'reasonably good'; it must be superior." In general, the committee appraises, the quality of the Bureau's work is good and the professional staff is competent.

Weapons Work Out: What started this special probe was the battery additive AD-X2 controversy that flared up last spring (*CW, April 25*). With Congressional and public opinion divided over the Bureau's part in that still smoldering spat, Weeks asked nine scientific and technical societies each to appoint one member to evaluate NBS functions and operations in relation to national needs. Serving as chairman was Mervin J. Kelly, director of Bell Telephone Laboratories; he was nominated by the National Academy of Sciences. The chemical viewpoint was represented by Kenneth S. Pitzer of the University of California, and member of the American Chemical Society.

Avoidance of future imbroglios like the one over AD-X2 is the aim of one of the committee's recommendations: that non-technical policy and procedures for testing commercial products be reviewed by the Secretary of Commerce and his staff, relieving the NBS director of the task of making decisions in this field. But, the committee adds, evaluation tests on commercial products "is a service that the Bureau must render."

Another step – already taken – to keep the Bureau out of predicaments was that of taking guided missile work and other weapons research and development out of NBS and tossing it into the Defense Department's lap. The committee heartily endorsed that move as one that would permit the Bureau to concentrate on its basic programs (*see table*). Also recommended: freeing the Bureau of its work on repetitive testing, such as testing each batch of cement for the dam-building program of the Bureau of Reclamation.

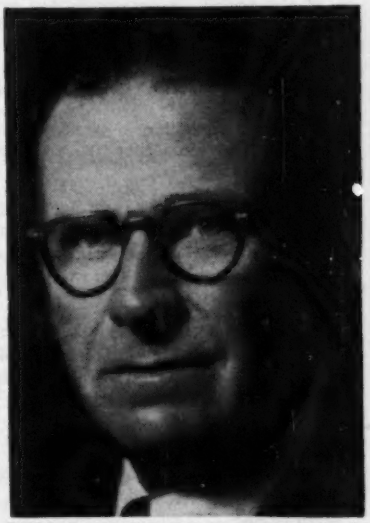
Bigger Budget Asked: Noting that many of the Bureau's tasks are "of great importance to our nation's industrial health," Kelly and his colleagues call for increased allocations to NBS to support "higher level of activity in the basic programs" and "modernization of facilities and increased space for basic programs."

In addition, the committee recommends that the scientific and engineering societies appoint advisory groups for the different scientific and technical divisions of NBS.

"The conversion of new scientific knowledge into industrial products," the committee explains, "is proceeding at an ever-increasing tempo. To aid the [NBS] Director in forming the new programs and in the consideration of balance on programs in being, the committee believes that a more intimate tie with the science and technology of the country is desirable."

Chemistry Division 'Gaps': While nearly every NBS division carries on work of importance to chemical companies (e.g., refractories in the Mineral Products Division, synthetic rubber in Organic & Fibrous Materials, and control instruments in Electronics Division), chemical interest centers, naturally, on the Chemistry Division.

There, the committee observes, circumstances have resulted in a program that contains strong points (as in testing of paints and varnishes) as well as certain "gaps" (as in finding more data on properties of many substances). In selecting future areas for investigation, an active advisory committee would be helpful, the committee underscores. "Of course, no matter how sound the program guidance, larger appropriations from the Congress will be necessary to transform the advice into productive projects."



BELL LABS' KELLY: For U.S. technology, 'reasonably good' won't do.

Specific recommendations for this division:

- Establishment of active advisory committee.
- Intensified program in measurement and compilation of data concerning the various substances.

COMMERCE DEPT.'S WEEKS: With most suggestions, he's in 'full accord.'

Bureau's Chores: Aids to Industry*

Work of the National Bureau of Standards, as assigned by Congress:

Fields of Responsibility	Specific Functions
√1. STANDARDS OF SCIENTIFIC MEASUREMENT " . . custody, maintenance and development of the national standards of measurement . . "	√ 1. Construction of physical standards
	√ 2. Calibration of standards and instruments
	√ 3. Instrumentation and measurement
√2. TECHNICAL PROPERTIES OF MATTER " . . determination of physical constants and properties of materials . . "	√ 4. Interstate commodity scales
	√ 5. Uniformity of weights and measures
	√ 6. Standard samples
√3. TEST METHODS AND TESTING " . . development of methods of testing materials, mechanisms and structures . . "	√ 7. Chemical analysis and synthesis
	√ 8. High and low temperatures
	√ 9. Radiation physics
√4. TECHNICAL CODES AND SPECIFICATIONS "Cooperation . . in establishment of standard practices, incorporated in codes and specifications . . "	√10. Atomic and molecular physics
	11. Standard radio frequencies
	12. Radio wave propagation
5. SCIENTIFIC ADVISORY SERVICES "Advisory service to government agencies on scientific and technical problems . . "	13. Radio frequency predictions
	√14. Technical process and fabrication
	√15. Building materials and structures
	√16. Metallurgical research
6. SPECIFIC SCIENTIFIC DEVELOPMENTS "Invention and development of devices to serve special needs of government . . "	√17. Applied mathematics laboratory
	√18. Science and engineering research
	√19. Publication of scientific and technical data

* Check mark (√) indicates work of direct interest and benefit to chemical industries.

EVERYTHING SHIPSHAPE: Neatly organized magic lore simple.

• Extension of activities in organic chemistry, and better contact with U.S. industry and technology.

• Additional funds to carry out those moves.

Weeks Concurs: The Kelly report and recommendations, which are in close agreement with the latest regular report of the NBS "visiting committee" that reviews the Bureau's work each year, has received Weeks' O.K.

"I am in complete accord with the views of the evaluation committee of the high level of importance to the nation of the Bureau of Standards and of the need for strengthening the Bureau so that its performance measures up to this level." (Weeks didn't comment on the committee's finding that NBS, like any large organization, has some inadequately qualified employees and some friction among employees, but that "their amount is not excessive." Weeks had forced the resignation of NBS Director Allen Astin last April, reinstated him in August.)

The Secretary added that he would do "all in my power" to strengthen the Bureau, and that he already has moved to carry out some of the recommendations. Industry now will be awaiting Weeks' action on appointing the advisory groups and on presenting to Congress the NBS budget for the next fiscal year.

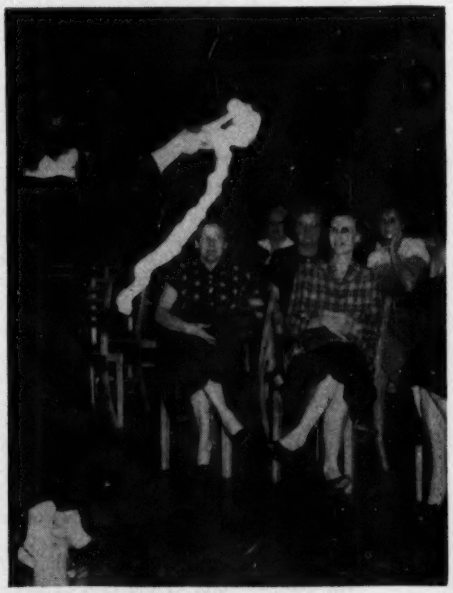
Concord on Customs

So that members won't be taken by surprise, the new customs counsel* for the Synthetic Organic Chemical Manufacturers Assn. has checked up on pending protest cases in U. S. Customs Court, notified member companies that might be concerned.

In all, the check-up uncovered more than 100 protests involving some 42 coal-tar chemicals and medicals. In each case, some importer is claiming that the product should come under a lower tariff category than that assigned by customs inspectors.

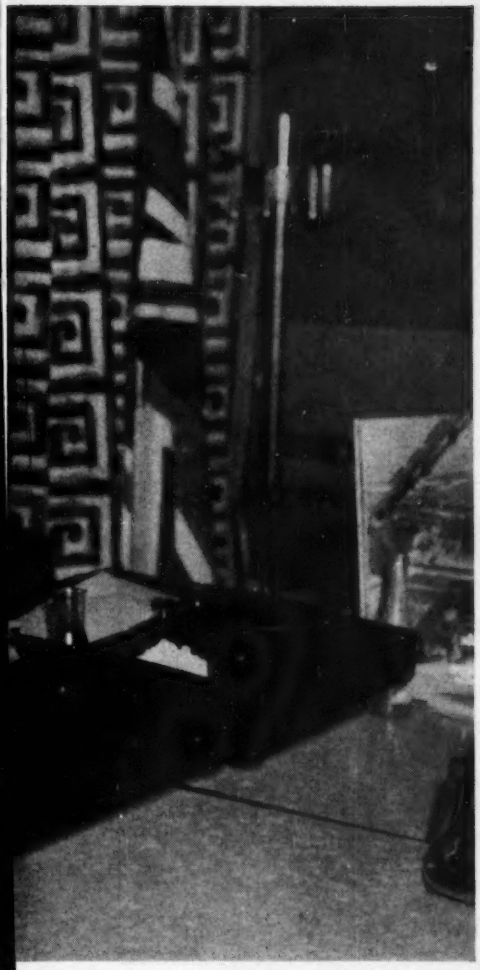
SOCMA is asking for reports on these cases from member companies that are familiar with those products or that produce competing products in the United States.

* James Donnelly, of Barnes, Richardson & Colburn, New York.

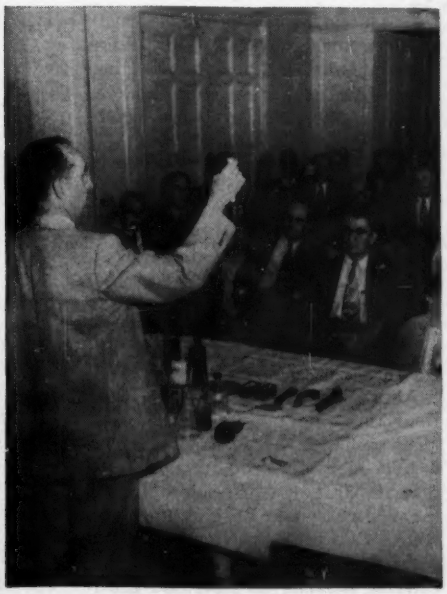


STANDARD STUNTS: Use of furfural in synthetic gled audience reactions.

Streamlined Magic



chemistry sets together with instructions . . . make



rubber (left) and petroleum refining provokes min-

Sometimes a chemical company finds itself in the unenviable position of not only having to dig out its own market, but also of having to sell the value of its product to the public at large. There's no glamor in corncobs; and few laymen know the meaning of furfural. Small wonder then that the Quaker Oats Co. has turned to magic shows to get its product across. To add to the punch: a running, informative pep talk about Quaker's experiences in getting its product rolling. First attempts at the idea of explanation-through-magic shows were made by Quaker in Chicago and St. Joseph, Mo., last fall. Judging from audience reaction and comment, early miscues were corrected, demonstrations were livened, and the whole performance dressed up in professional style.

To insure safety for performers and audience alike, chemical department researchers worked over the equipment used, made substitutions where dangerous reagents were involved. One example: Quaker magicians simulate the rocket-fuel test—nitric acid, normally used, is omitted.

Equipment kits are packaged by a Chicago company and are sold or billed to each plant. One kit, say quasi-magicians, lasts for ten shows, then you have to get a refill of "pop bottles." Instructions for handling and safety rules are included in every set; they run from "how to swab up spilled sulfuric with sodium bicarbonate" to when to flash the "no smoking" sign.

Judging Reactions: Quaker company officials—once skeptics—are now sold on the value of magic shows. Says chemicals sales manager McKinney, "At first I thought they were dreamy. My doubts about the whole idea were only exceeded by the Public Relations Department's faith and determination to make it work. But now I'm sold all the way . . ."

Today's version runs something like this. Quaker home offices send out furfural-magic kits to all plants, together with suggested narrative and instructions on how to use the set. The plant manager (or whomever he may designate) then proceeds to steep himself in the magic-lore of furfural, makes himself (or herself as the case may be) available to local clubs—Kiwanis, Lions, Rotary, educational institutions, etc.

The show starts off with a bang. Butadiene in pentane is polymerized to synthetic rubber; thus Quaker's part in the chemical industry is immediately made clear. Versatility is shown by furfural's use in producing Furacin (used in medical dressings) and as a wetting agent in products such as grinding wheels. Its value to the individual is shown by a simplified version of how furfural's used in refining motor oil.

Then back to the corncob theme. Quaker's method of producing furfural gets a going-over; a short history of how the company broke into the chemical field "from a breakfast food producer" is added. For the numerically minded: figures, facts and prices.

Magic returns again when uses of furfural come in for a share of the limelight. Plastics, nylon, food additives make lively audience attention-snatchers, make sound points of argument for the trust Quaker held in its product "during the hard, market-forming years."

To emphasize furfural's place in the U.S. chemical future, Quaker magicians hold the show-stopper until last—furfural's use in rocket fuel. As furfural meets nitric acid, the balloon bursts, and the show's over.

Needless to say, community relations get a shot in the arm.

COMPANIES. . . .

Great Lakes Carbon Co. plans to develop a new city of 60-70,000 population on the Palos Verdes (Calif.) peninsula "within the next ten years." Construction of some 11,000 homes, together with schools, parks, shopping districts, will all fall under the general heading of exploiting Great Lakes' diatomaceous earth deposits, located in the heart of the peninsula, atop the Palos Verdes hills. Initial investment to bring in water electric power, sewers, roads: more than $6 million.

Only hitch in the plan: protest petitions from several residents in the near-by Rolling Hills and Walteria areas, who fear that development of the proposed industrial area will adversely affect their property values.

•

Atlantic Research Corp., Alexandria, Va., will rebuild its present office accommodations, add additional space at a cost of around $50,000. Construction completion is expected in the fall.

•

Thiokol Chemical Corp. expects to award contracts soon for construction of 13 warehouse and fuel magazine structures at its Longhorn, Tex., Ord-

nance Works, after opening of bids by the U.S. Corps of Engineers at Tulsa.

•

Atlas Powder Co., Wilmington, Del., has awarded the general contract for construction of its new $2.5-million home office building to H. K. Ferguson Co., New York City.

•

Victor Chemical Works, Chicago Heights, Ill., plans to build an office building at Morrisville (Bucks County), Pa. Contractor: Belli Co., Trenton, N.J.

•

Smith, Kline and French, Inc., has let a $20,000 contract to Barclay, White & Co., Philadelphia, Pa., to build an addition to its present plant. Construction work has already started.

•

Maumee Development Co., Toledo, O., has changed its name to Maumee Chemical Co. Reason for the switch: an attempt to more clearly describe the major activity of the company—manufacture of fine organic chemicals.

EXPANSION . . .

Plastic Bags: Dewey & Almy's Lockport, N.Y., and Cedar Rapids, Ia., plants will be included under a $1-million expansion program, company officials say. Plans call for completion of the work to meet expected peak seasonal demand next spring for plastic bags used by the meat, poultry and cheese packing industries.

•

Petrochemicals: Sinclair Refining Co. has put in a new series of refining units at its Houston, Tex., plant with the aid of a $35-million DPA tax certificate of necessity. Designed to double the company's output of aviation gasoline, the added facilities will in addition supply about 2,000 bbls./day of feed stock for the manufacture of synthetic rubber for use at the government-owned rubber plant in Houston, now under operation by Sinclair Rubber, Inc.

•

Polystyrene: Dow Chemical Co.'s new plant producing Styron polystyrene at Torrance, Calif., has gone on-stream. Production facilities are of open-type construction; finishing and packaging sections are enclosed in a brick and steel building. Company officials expect to sell the West Coast plastics molding industry.

•

Hexamine: Mathieson Chemical Co. has started production of hexamethylene-tetramine at its Morgentown, W. Va., plant. Principal industrial uses: as a convenient source of water-free formaldehyde in the manufacture of phenolic resins, as a vulcanization accelerator in rubber, as a hardening agent for proteins. No production figures are available.

•

Phosphates: Latest government roundup of expansion under the DPA's phosphatic fertilizer goal shows that the U.S. is still below par. A total of 56 projects (completed, under construction or planned) have only a total capacity of 1.2 million short tons; the goal calls for 1.3 million tons. Moreover, work on 14 of the projects hasn't even started yet.

Broken down, the capacity listed promises: 572,700 tons triplesuperphosphates, 148,600 tons superphosphates, 136,500 tons phosphoric acid and miscellaneous.

•

Sulfur: Stauffer Chemical Co. has started work on a $1 million plant, scheduled for completion by May 1954, to manufacture Crystex (insoluble sulfur) at Monongahela, Pa. Demand for the material, company officials say, exceeds production available from Stauffer's two existing plants turning out Crystex—at Richmond, Calif., and Chauncey, N.Y.

Here's What the Soviet Bloc is Exporting to Western Countries

(in thousand $)

Country	Chemicals	Dyes	Medicinals	Fertilizer
Belgium	$592	$33	$16	$1,801
Canada	0	0	0	99
Italy and Trieste	831	3	0	500
Denmark	254	8	75	5,862
France	425	69	154	2,451
Iceland	1	0	1	2,946
Great Britain	572	4	102	2,946
Germany (West)	328	1	41	0
Norway	152	7	35	2,687
Netherlands	857	11	2	102
Sweden	1,456	56	197	3,164
United States	67	1	20	2,731

Reverse Picture

While chemicals have been seeping through the Iron Curtain from the West (CW, Oct. 17), there's been some trade in the other direction too. Figures obtained this week from the Organization for European Economic Cooperation clearly show that last year's take leaned heavily to fertilizers—with Denmark on the receiving end of a major share of the outgo. Flow of chemicals, medicinals and dyes (with few exceptions) moved only at a slow trickle.

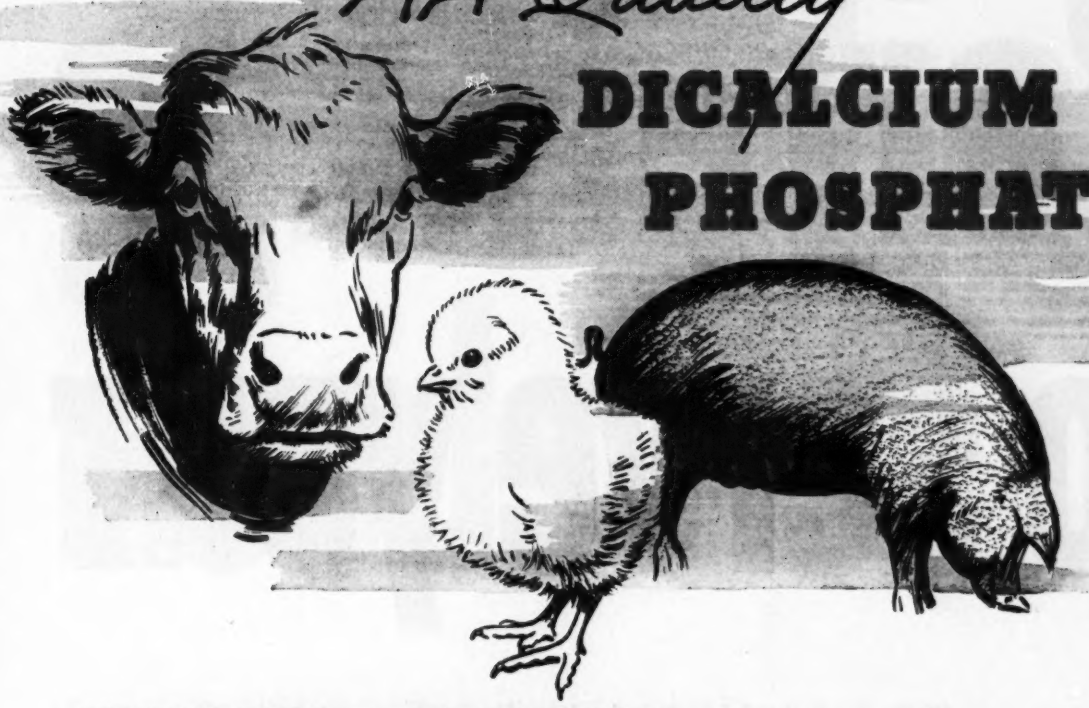
Meanwhile in Washington, U.S. official middle-of-the-road policy regarding trade with the Soviets continues. Latest development: Commerce Secretary Sinclair Weeks has lifted a three-year-old rule requiring U.S. government licenses for goods that American exporters want to ship to British Hong Kong. The rule had been made, late in 1950, when Red China moved into the Korean War—specifically to close what appeared to be a loophole in East-West trade.

Government officials still insist, though, that all U.S. exports consigned directly to Red China are forbidden—banned under an order issued before outbreak of hostilities in Korea.

The Weeks repeal is seen as an attempt to encourage trade with Hong Kong only; general U.S. export rules still prohibit reshipping goods from a friendly country to one that's blacklisted. Also, says Assistant Commerce Secretary Anderson, "experience of the past year convinces us that we can repeal the ban now without adversely affecting our security."

Apparently that's a hint that Hong Kong authorities now have their smuggling problems well in hand. Tales of what's been going on, though, continue to drift out. The latest tells of the wild chase of a British patrol boat that sighted, fired on and apprehended a suspicious PT boat, found it to be carrying paraffin, tin plate and galvanized steel to the China Coast—all highly strategic materials.

AA Quality DICALCIUM PHOSPHATE



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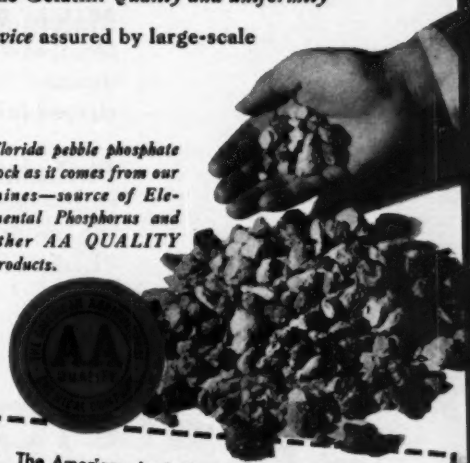

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	Copper	26 Parts	7
	Zinc	44 Parts	7
	Cobalt	95 Parts	10
GLUCONIC ACID Sequestering action of 100 parts of acid	Iron (Ferric)	24 Parts	7
	Aluminum	4 Parts	7
	Copper	26 Parts	7
	Zinc	27 Parts	7
	Cobalt	6 Parts	10

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SQUARE-DEALING TRIUMPH: With old hostilities erased, Diamond's Painesville plant is site of Family Day genialities; union President Adams helps register guests.

Make the Best of It

Philosophizing that a labor union in a chemical plant is something like a mother-in-law in a home—i.e., a situation that one has to accept and try to make the best of—has helped clear the once-murky air of Diamond Alkali's labor relations.

"There are bound to be differences of opinion, and there are going to be arguments as to who is right and wrong, but the mother-in-law is there to stay," observes C. R. Brown, labor relations director at Diamond's Painesville (Ohio) plant. "So to keep peace in the family, you learn to see her side, understand her problems. Once she realizes you're being fair with her, you get rid of much of the confusion and hostility."

A sportier analysis of what has happened at Painesville is this account by a long-time member of the local union's negotiating committee: "When we found that the company was going to play its cards as they came off the deck and over—not under—the table, then we started to operate the same way."

Battling Background: The present era of good feeling at this plant dates back only to 1950, the year Brown joined the staff. Before that, industrial relations had been going downhill by fits and starts following the employees' choosing of Local 12231, United Mine Workers District 50, as their bargaining agent in 1941.

Previously, the plant force had had a number of "short-pants" unions, but with District 50 there came a bargaining forcefulness entirely new to Painesville. There were comparatively frequent strikes and disputes, costly to employees because of lost wages and to management because of lost production. Management extended an olive branch in 1947 when Raymond F. Evans, whose father had been in-

NO-WAIT PICTURES: For family albums, quick-print "shots" were Family Day hit.

DIAMOND'S HOSPITALITY: On every side, special safety precautions (above), free refreshments (below) for all guests.

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strumental in forming the company, was elected president.

"We are determined," Evans told his employees then, "to maintain our pay schedules on a basis equal to the prevailing rates in the community, and to improve and maintain working conditions on as high a level as is consistent with the activities we are engaged in."

Hair-trigger Strikes: But the employees, many of whom had picked up anti-management sentiment from their immigrant parents, were still belligerent. Impatient and distrustful, they would "hit the bricks" rather than carry a grievance to arbitration.

All-time low in the plant's labor relations came in the summer of 1950, when a bitterly waged strike kept the wheels from turning for 67 days. This turned out to be the darkest hour before the dawn of a much brighter day for Painesville. Both labor and management, exhausted to desperation, felt that it was time for a new, more give-and-take approach. They expressed this feeling by signing a three-year contract—first long-term pact in the plant's history—and confirmed their decision by living up to the terms of the agreement.

As soon as the huge plant got back into operation, it became apparent that both sides had tossed past attitudes and past practices into the slush-pit. Not a single work stoppage occurred, and out of the 600 grievances filed by Local 12231 over that period, two were settled by arbitration, the others in earlier stages.

Sharing of Secrets: One way in which Diamond management holds the loyalty of these men is by explaining to them—often through union officers and stewards—just what the company is doing and why. Changes in management and operations aren't sprung on employees with *post facto* bulletin board announcements; they're made known in advance, with reasons for the moves.

Several months ago, when it was time to negotiate a new contract, many union members gave their bargaining committee to understand that another prolonged strike was not wanted; and the new agreement was inked 10 days before the old one expired. There were three desirable novelties about those negotiations: first time a new contract was ready ahead of time, first time neither side brought a lawyer to the bargaining table, and first time that not one member of either bargaining team raised his voice during the sessions. Management readily admits it granted more concessions than it had planned to, and union officials admit they didn't obtain all the benefits they had sought. In saying "no" to economic demands considered to be beyond the company's means, the management negotiators explained the company's sales, financial and competitive positions as justification for the company's stand.

Pulling Together: Indications of the extent to which this new live-together-and-like-it spirit has pervaded the Painesville plant:

- Constructive, cooperative work by all members of the joint safety committee.
- Development of a new apprenticeship program that's a sharp break with the past. "Our old training course," commented one veteran union committeeman, "was the old red apple variety. This new one is going to produce skilled men."
- Successful operation by rank-and-file employees of the Diamond Recreation Assn., with 2,400 members.
- Holding of a "Family Day" program—an unprecedented move for a company that formerly had opened its gates to very few visitors—with the union's help late last summer. Six thousand people, members of employees' families, toured the entire plant, from the spotless new hospital to the hot, smoky coke ovens (*see pictures, p. 21*).

"We don't get double-talk; we know what's going on and why," summed up one officer of Local 12231. "This is a good place to work."

Two-for-one Proposal

A sudden break in both the supply of radioactive materials and the amount of electric power available for industry in the Pacific Northwest were in the offing this week.

Awaiting approval by the Atomic Energy Commission, General Electric says it's ready "to proceed at once with development and design, followed by construction and operation," of a dual purpose reactor that "will produce large quantities both of plutonium and of electric power."

Such a reactor, GE envisions, can be in operation at the AEC's Hanford Works near Richland, Wash., within five years.

"Success in our development work," promises GE President Ralph Cordiner, "will mean that we can change the immense Hanford operation from a drain on the power-short systems of the Northwest to a substantial contributor of power." Also, he adds, the new unit will lead to another reduction in the cost of producing plutonium.

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Assay ($Pb(NO_3)_2$)	99.0 %
Insoluble Matter	0.010%
Substances not precipitated by H_2S (as SO_4)	0.50 %

Color—White

LEAD ACETATE, Technical Crystal Small Crystal Granular 4-20 Mesh Powder

$Pb(C_2H_3O_2)_2.3H_2O$ — F. W. 379.346

Assay ($Pb(C_2H_3O_2)_2.3H_2O$)	99.0-105.0%
Insoluble Matter	0.020 %
pH of 5% Solution at 25°C.	5.5-6.5
Substances not precipitated by H_2S (as SO_4)	0.20 %

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Colorless and free flowing

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Small Crystal—Mesh:
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Insoluble in HNO_3	0.20%
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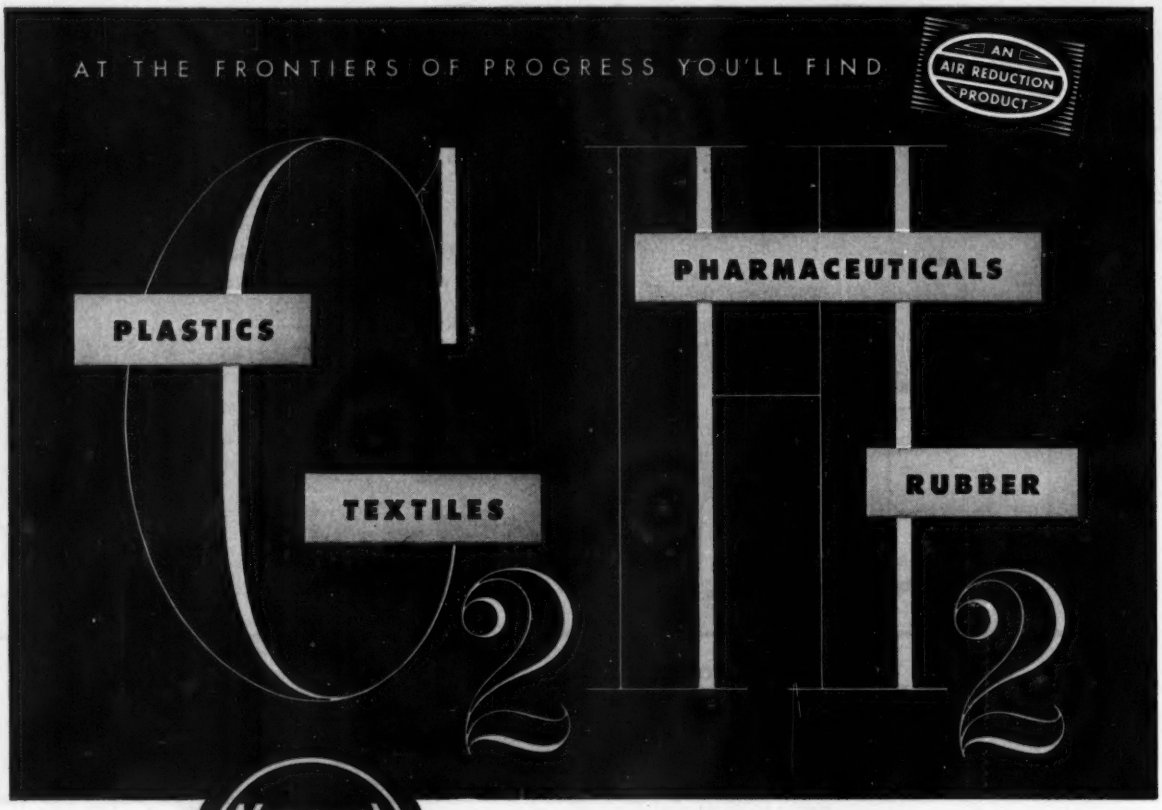

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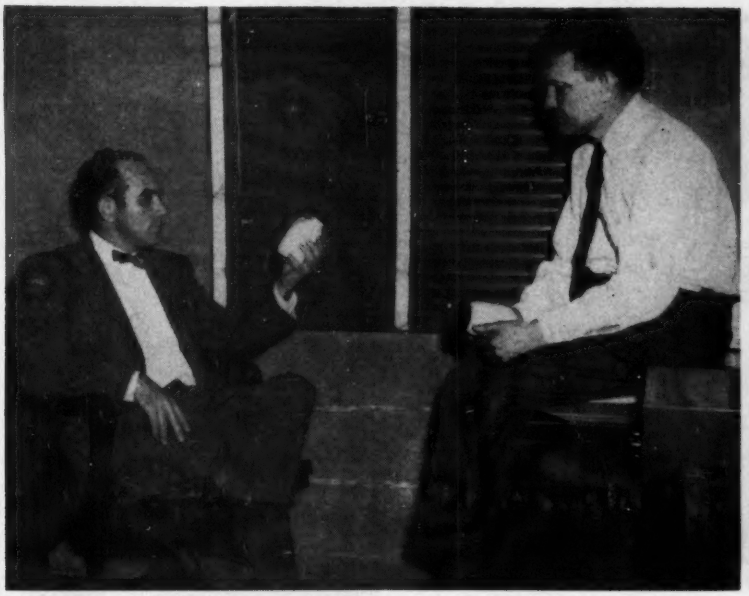
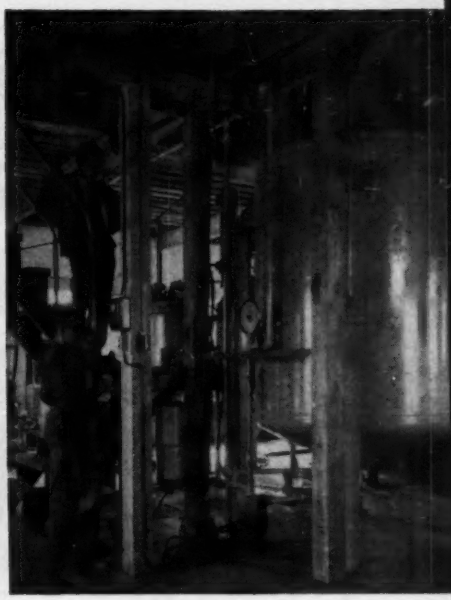


TALKING IT OVER: Nease and Pedlow hope for great things from production of dimethylaminoethyl chloride hydrochloride . . .



. . . and sodium methylate solutions of various concentrations . . .

Right Time, Right Place, Right Ingredients

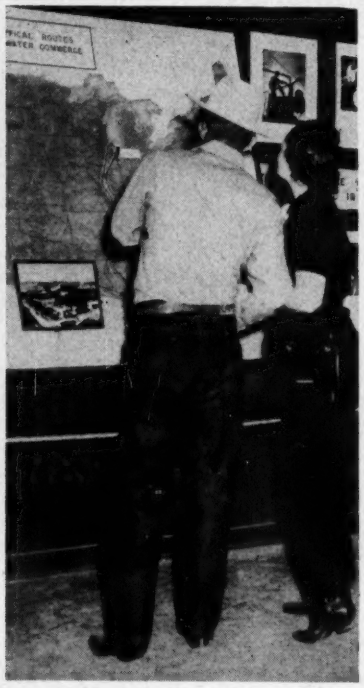
Sometimes the process of forming your own chemical company is like working out an idea on canvas. It takes a rare combination of hard work and intuition, laced with inspiration to realize a dream. That's the story behind the formation of Pedlow-Nease Chemical Co., of Lockhaven, Pa., the firm that this week is breaking out into production of sodium methylate solutions, promises other organic intermediates in the very near future.

Strictly from a background standpoint, Pedlow and Nease—the co-founders of the company—have widely varying records. Pedlow has been strictly steeped in chemical research, has worked on dyestuffs intermediates and organo-silicon compounds; Nease has turned his hand to market research and development. But both men saw a need in the U.S. economic set-up today for small chemical companies. The reason: numerous demands for specialized chemicals, production of which either quantitatively or in dollar volume isn't attractive to larger outfits.

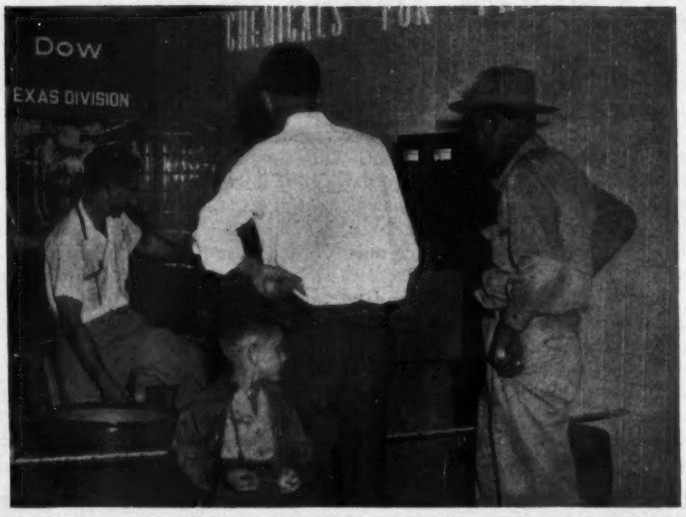
The seed of an idea began formulating in Nease's mind in 1947 while working on market surveys and product development of petrochemicals. But in order to make plans jell, he needed supplementary experience. Pedlow, in casual conversation, supplied the needed spurt in the fall of 1950—the possibility of forming a partnership to engage in custom manufacture, principally for the pharmaceutical industry. Actual formation of Pedlow-Nease Co. took place Jan. 1, 1951; incorporation followed a month later.

By September, 1951 equipment had been installed, was in operation, and a first shipment was made of an intermediate for chloromycetin. From then until now, over a span of three years, fourteen products involving forty intermediate compounds have been offered on a custom basis—from photographic chemicals to pharmaceutical intermediates. In addition: pilot plant development and other manufacturing

. . . look ahead to possible capitalization on a dozen research and development projects in which special interest exists.



Grassroots Diplomacy



COUNTY FAIRS the country over over derive financial support and much of their individuality from local industry. In Brazoria County, Texas, this year, Dow Chemical Co. seized the opportunity to build up good will by introducing to its neighbors the products it makes at the near-by Freeport plant. Features of the Angleton Fair: plastic molding demonstrations, laboratory apparatus glass-blowing shows.

Held over a four-day period, Dow's exhibit attracted visitors of all ages, as many interested in the part the company plays in the U.S. chemical setup as in the displays themselves. For many, it was a first look at the company that's the largest county taxpayer.

services have been rendered on three more products; research and process development work has been completed on a dozen more.

This week's initial plant run of sodium methylate really sets wheels humming, though. Yearly output will come close to several million pounds of a 25% solution in methanol, will seek to buck trade of Mathieson Chemical Co., main producer in the field today.

Pedlow-Nease isn't stopping there, either. Production of other sodium alcolates is on tap, including manufacture of a 20% solution of sodium isopropylate in isopropanol, planned for shipment in polyethylene-lined fiber drums. Dimethylaminoethyl chloride hydrochloride and diethylaminoethyl chloride hydrochloride, too, are now available in quantity. They go to the pharmaceutical industry for use in antispasmodics and antihistimines. Markets in the latter case are limited, the partners admit, by the growth and development of new drugs—but one of the beauties of being in the custom business is that if one market slumps, another is always available.

What's Ahead: As far as future plans go, both Pedlow and Nease say they're determined to strike a balance between custom contracts and products offered for general sale. Each type of production offers a safety valve to the other. Between custom jobs—even in good business periods—there's apt to be a gap, which general production serves to close up. On the other hand, you gain an advantage in custom work of lower sales expenses; you are working with a single customer on a single contract—and you generally have the signed order in hand before you buy a dollar's worth of raw materials. There's no waste, no over-production.

Further, say the company partners, Pedlow-Nease has the jump on its larger competitors in that it's able to

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Highly diversified production? Sure, but completely integrated too. For the steady growth of Pittsburgh Coke & Chemical Company has always followed the natural flow of integrated production.

Today, in our 25th Anniversary Year, the operation of each of Pittsburgh's ten divisions is meshed in one highly coordinated production pattern. The company's customers, perhaps more than anyone else, know the ultimate benefits of this unique production position: Assured product quality and dependable, continuing supplies . . . because Pittsburgh is *basic.*

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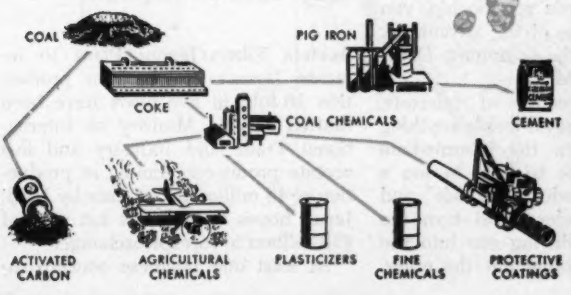

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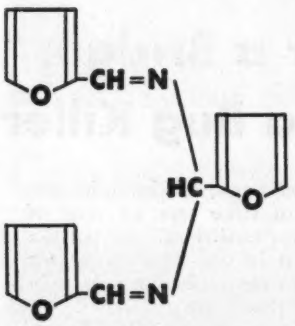

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move faster, with little red tape to cut, no major policy dicta to hurdle. The decision, for example, to switch over-night to a new (and more profitable) product rests only on versatility of equipment and desire of the owners to take on the job.

To enhance its versatility, says Nease, the company uses all stainless-steel and glass-lined equipment. What's being used today to turn out sodium methylate, may tomorrow be used in producing an entirely foreign product. But capital limitations can't be dodged by such circumnavigation: "We've found that a small company like ours can do almost anything except high-pressure jobs, and work involving long-range research and development—and that's strictly because of the money outlay involved."

So far the Pedlow-Nease combine has come up against no great expense regarding procedures. The company placing the order has willingly offered its ideas on the subject; it's simply been a matter of modifying certain phases to adjust to available equipment—"in certain cases where ordinarily a distillation is required, we've found it simpler to recrystallize. The product's better—and the switch made it possible for us to get another job under way we couldn't have tackled otherwise."

The small company thinks twice about taking on a product for which there's no proved market, too. Its market researchers are always on the lookout for items "that look like made-to-order set-ups." When they find one, they settle down to survey cost of raw materials, cost of production, and availability of equipment in order to determine whether there's sufficient margin to make production profitable. "But," says Nease, "there's no fixed formula. Whether we go ahead or not depends on lots of factors."

Pedlow-Nease has had as many as five custom orders running at the same time, sees no reason why more can't be handled provided their facilities continue to grow. No immediate and sudden expansion is planned however. "With proper management," notes Pedlow, "there's no limit to this kind of thing. But if you get too big, you begin to lose some of the advantages that you had in the beginning. Overhead is the big item."

Concerning breadth of interests, both men claim they'll tackle anything "within reason" in the intermediate organic field. The trick is to toe a line between "products for sale" and chemicals "on order," and turn the handicaps of producing one into the advantages of turning out the other.

For Shorter Sick Lists

Progress in industry's incessant drive for healthier employees and steadier production is in the news this week: goals for the future and accomplishments already recorded.

• Some 600 management executives, physicians, chemists, engineers and other specialists are expected to attend the 18th annual meeting and professional conference of the Industrial Hygiene Foundation on Nov. 18-19 at the Mellon Institute, Pittsburgh. Topics will include ways of improving health and human resources through reducing plant noise and through programs for treatment of alcoholism. Others: medical care in industry, stress disorders, compensation for residual disability, problems of older workers.

• Among member companies of the Manufacturing Chemists' Assn., accidents in chemical plants have dwindled by 12%, comparing records for the first eight months of 1953 with the corresponding period in 1952. Alexander Wuertz, secretary of MCA's General Safety Committee, told an industrial safety group at Wyandotte, Mich., that this could be traced to greater interest and more attention on the part of top management, assignment of better-trained safety supervisors, and stepped-up educational programs. The chemical industry, Wuertz says, today has one of the outstanding safety records in America.

FOREIGN . . . . .

Sulfur/Canada: Main roadblock to any development of Canada's two major potential reserves of sulfur (pyrites and natural gas) is the cost of transportation. The problem: with the expansion of natural gas exports from Alberta, production of recovered sulfur could exceed 150,000 tons yearly, but to reach the consuming centers in British Columbia, Ontario, and Eastern Canada it would be subject to rail hauls of between 800-2,000 miles. Result: last year Canada used 658,600 short tons of sulfur—415,200 tons of which were imported.

•

Acetate Fibers/Japan: Plans to increase Japan's acetate fiber production 16-fold in five years have been drafted by the Ministry of International Trade and Industry and five acetate producers. Aiming at production of 48 million lbs. of fiber by 1958, Japan hopes to realize a net gain of $50 million in foreign exchange.

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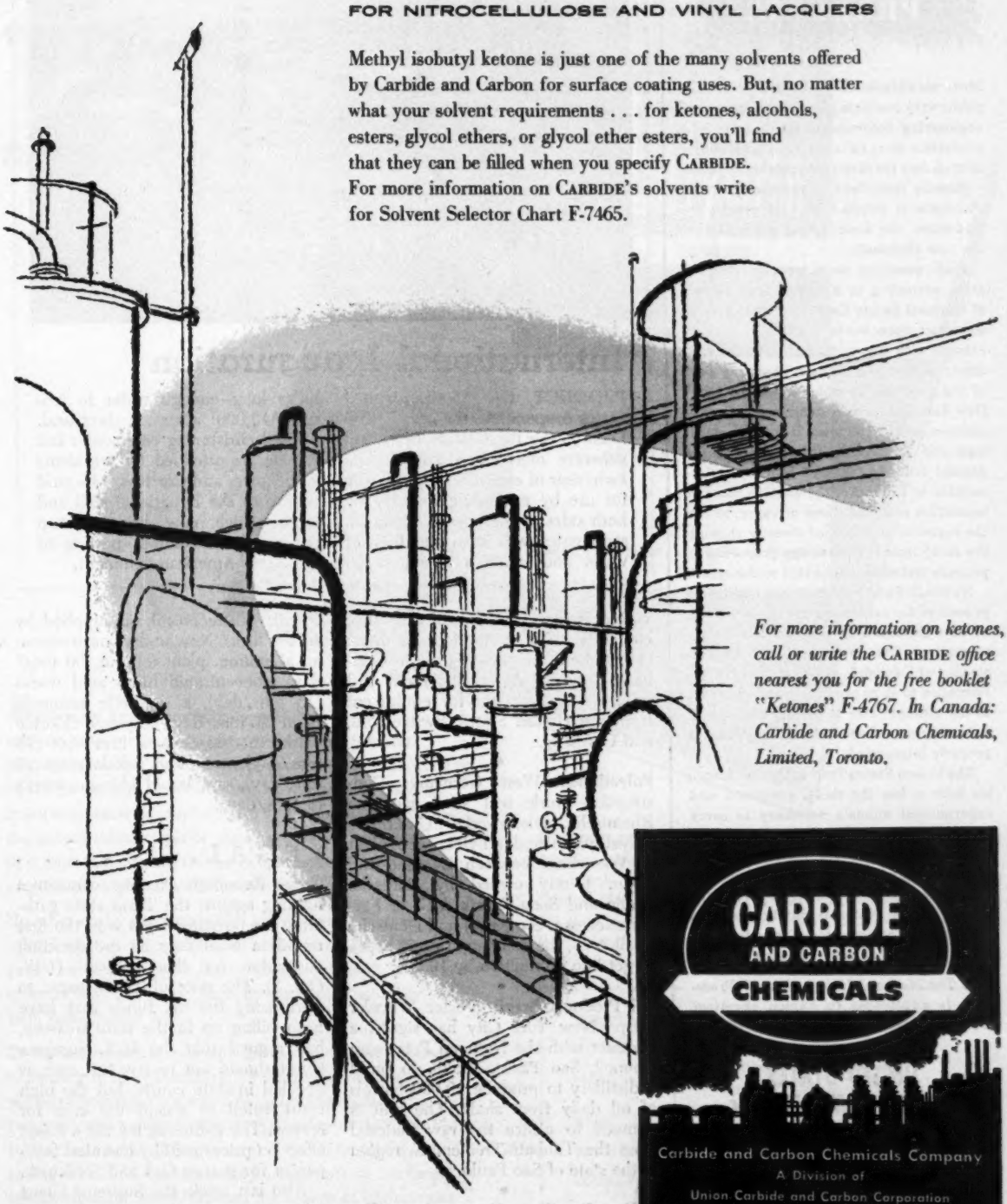

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TOXICITY EVALUATION OF NEW CHEMICAL PRODUCTS

Most manufacturers of chemicals make public very complete physical, chemical and engineering information about their new products – most have excellent laboratories of their own for developing this kind of data.

Equally important to the users of new chemicals is another kind of precise information, the toxicological properties of the new chemicals.

Such questions as these are likely to arise, according to a recent news release of National Safety Council: "What may be the effect upon workers who will come in contact with this new chemical substance either accidentally or as a necessary part of the processes in which it will be used? How does this new substance compare with common and well-known industrial chemicals and what is the information on the general order of toxicity? Is it low, intermediate or high? Are the hazards those of inhalation as a dust, fume or vapor, or can the material be absorbed directly through the skin? Does it possess any properties of primary irritation of the skin or the eyes?"

National Safety Council has outlined a procedure for evaluating the acute toxicity of new chemicals by the producer before marketing. This procedure, the Council states, will furnish sufficient toxicity information to allow production and shipment to the ultimate user to be carried out in a safe manner when the test results are properly interpreted.

The United States Testing Company, Inc., we believe, has the skills, equipment and experimental animals necessary to carry out the highly specialized type of investigation outlined by the National Safety Council. Cost and details of this service will be supplied upon request. Please write for a copy of the National Safety Council's Proposed Procedures for Evaluating the Acute Toxicity of New Chemicals.

P.S. The National Safety Council Procedure is applicable to known chemical products as well as the new.

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PRODUCT OF Mexican-United States cooperation, the new Falcon Dam on the Rio Grande River will generate more than 200 million kwh/year of electricity—specifically for use by expanding industry on both sides of the border. Six 50-ft. steel gates will stem the flow of water and create a lake over 60 miles long—enough water to irrigate 13,000 acres of farmland. Formal christening ceremonies last week were attended by Presidents Eisenhower and Cortines, who paid tribute to the bi-national skill and labor which now brings cheap power to still another portion of the North American continent.

volved is seeking technical assistance contracts with a foreign producer (Mitsubischi, negotiating with Celanese Corp. of America). About $13 million will be spent for equipment from the United States, Switzerland, and Germany.

•

Polyethylene/West Germany: Construction work will start soon on Rheinische Olefinwerke G.m.b.H.'s polyethylene and ethylbenzene plant at Wesseling, between Cologne and Bonn. Jointly owned by Badische Anilin and Soda-Fabrik A.G. (a Farben successor company) and Deutsche Shell A.G., the company says it hopes to get into production by 1955.

•

Oil Products/Brazil: Foster Wheeler Corp., New York City has signed a contract with the National Petroleum Council, Sao Paulo, Brazil, to build a distillery to produce 10,000 barrels of oil daily from shale. The unit is planned to utilize the raw material from the Taubatê-Tremembré region in the state of Sao Paulo.

•

Italian-Brazilian Cooperation: The Nitro Quimica Brazileira Co. will erect a series of chemical plants in Brazil with technical aid supplied by Italian firms. Now under construction: an aluminum plant (output, 30 tons/day), concentrated nitric acid works (15 tons/day), a synthetic ammonia plant (25 tons/day), polyvinyl chloride works (6 tons/day), a urea unit (25 tons/day), a sodium sulfide plant (2 tons/day), and liquid chlorine works (8 tons/day).

LEGAL. . . . . .

Texas Rebuffed: Pipeline companies fighting against the Texas state gathering tax on natural gas won the first round in what may be the deciding encounter on this subject (*CW, Oct. 3*). The state of Texas, eager to start using the tax funds that have been piling up in the state treasury, had argued that the U.S. Supreme Court should not review this case as decided in state courts; but the high court voted to accept the case for review. The gathering tax has a direct effect on prices paid by chemical companies for gas as fuel and feedstock.

Also last week, the Supreme Court refused to reconsider its previous decision in the Texas City explosion case. The court had ruled last June that

FOR THE COATING INDUSTRY:

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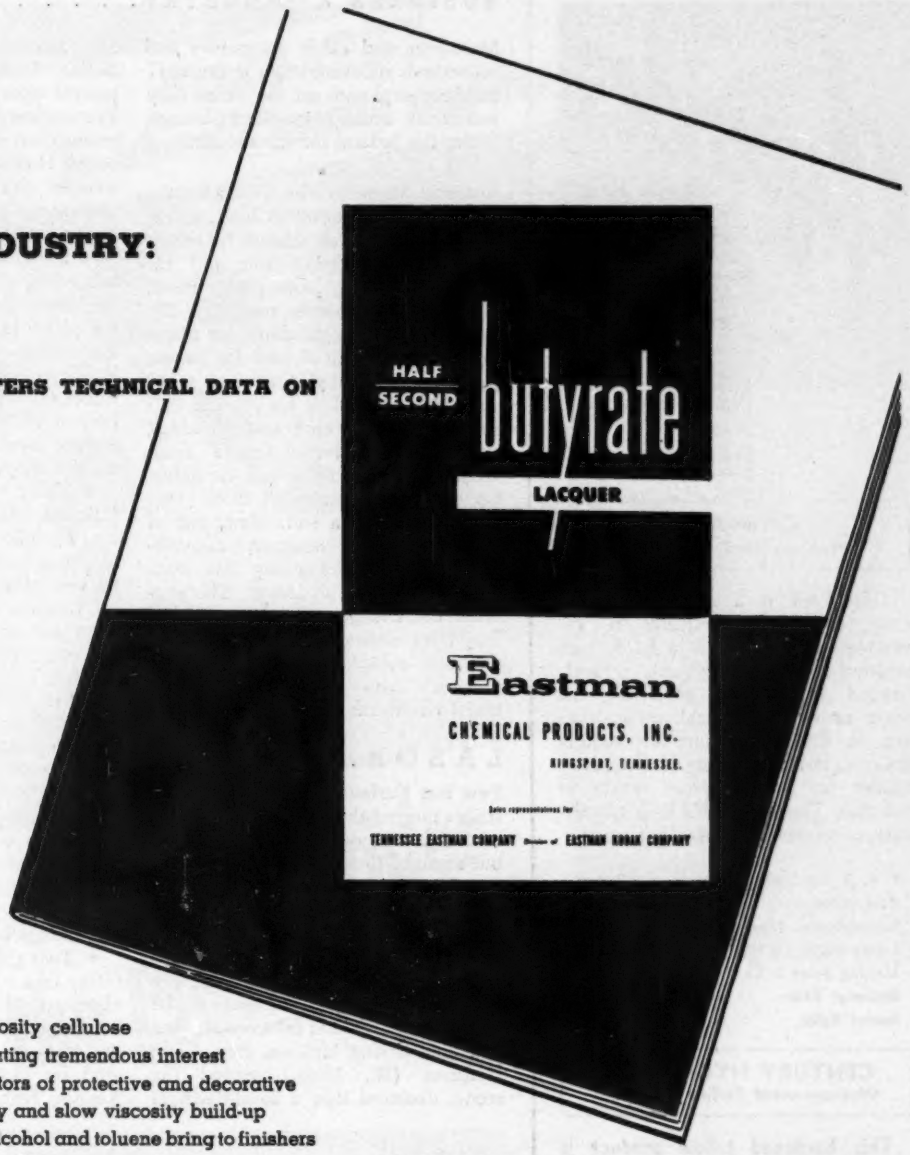

Eastman's new low-viscosity cellulose acetate butyrate is generating tremendous interest among users and formulators of protective and decorative coatings. Its high solubility and slow viscosity build-up in solvents such as ethyl alcohol and toluene bring to finishers the unique advantages of cellulose acetate butyrate in a form that permits its use in economical formulations requiring a high non-volatile content.

No other easily sprayable film former exhibits, to such a high degree, the stability of half-second butyrate in the presence of ultra-violet light and the outstanding retention of its initially low color, high strength and flexibility, both indoors and out.

To further acquaint you with half-second butyrate and to assist you in evaluating it for your own requirements, we have prepared a sixteen page booklet containing comprehensive data on the compatibility of this new film former with some 125 natural and synthetic resins, oils and waxes. This data includes such factors as hardness, tensile strength, flexibility and the effects of underwater immersion. Also included are formulation suggestions for wood, paper, metal and plastic finishes, heat-sealing adhesives and melt coatings.

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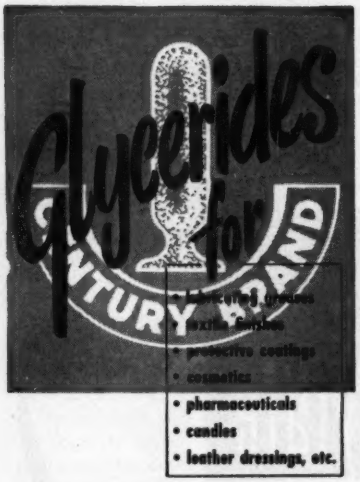

CENWAX G
(Hydrogenated Castor Oil)

CENWAX is a glyceride chemically, although physically it resembles a wax. It is a hard, high melting point solid, available in finely beaded form, with practically no taste or odor. Typical applications are in lithium, barium or sodium greases; hot-melt paper coatings; extender for higher priced waxes in polishes. These CENWAX G specifications should suggest other uses:

F. F. A. (as Oleic Acid)	2.0 max.
Acid Number	4.0
Saponification Number	176 — 184
Iodine Value (WIJS)	1 — 5
Melting Point (°C)	82 — 85
Hydroxyl Value	155 — 165
Acetyl Value	137 — 148

CENTURY HYDREX 360
(Hydrogenated Tallow Glyceride)

This hardened tallow product is available in beads and its good color, high titre and low iodine value particularly suit it for use in certain textile finishes and lubricating greases.

Specifications

Titre (136.4-140.0°F)	59—60.0°C
Iodine Value (WIJS)	1—3
Free Fatty Acid	1—3%
Acid Number	2—6
Saponification Value	190—195
Color 5¼" Lovibond Column (Max.)	15 Yellow—2 Red

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BUSINESS & INDUSTRY

Monsanto and other companies and individuals suffering losses in the 1947 fertilizer explosion on the Texas City waterfront could not collect damages under the federal tort claims act.

•

Antitrust Surprise: The GOP administration's first big antitrust blast, which was fired last week against American Smelting & Refining Co. and St. Joseph Lead Co., looks pretty much like the ammunition used by the Democrats. The defendants are major domestic suppliers of lead for paints, pigments, tetraethyl lead and other chemicals as well as for storage batteries, cable covering and plumbing supplies. One businessman's comment: "The Democrats had the industry under observation all those years and never filed a suit. Now, out of the blue, the businessmen's administration says the industry has been violating the law all along." The government's charges: that by means of long-term contracts with each other, the two companies monopolize the country's lead business, controlling about two-thirds of the lead sold.

LABOR

Few but Furious: Only a handful of strikes marred the chemical industries' labor relations picture this past week, but some of them were violent.

• Near Iron Mountain, Mich., two nationally known political figures were blaming each other for recent violence on the picket lines at the Kingsford Chemical Co., where the firm's more than 500 employees appear to be about evenly divided between striking and non-striking factions. Rep. Clare Hoffman (R., Mich.) visited the scene, declared that a breakdown in law enforcement has resulted from failure of state and county officials to protect citizens in their right to work. In a countercharge, Michigan's Democratic Gov. G. Mennen Williams accused Hoffman of having "fomented trouble" and "agitated workers" while visiting the plant. Previously, Williams had refused to send state police to Iron Mountain (*CW, Aug.* 29); but last week, after some workers injured a woman striker by driving through the picket line and another car carrying workers was overturned by pickets, Williams authorized use of "whatever forces are needed." The strikers, members of the CIO Auto Workers, want a wage increase, a dues check-off and a union shop.

• Three non-striking employees of Jefferson Island Salt Co., New Iberia, La., have been arrested on charges of shooting and wounding three members of Local 28, International Chemical Workers Union (AFL), which has been on strike at that plant since August, 1952. The latest shooting incident came last week when a five-minute barrage of shotgun fire wounded two unarmed union pickets at the main gate when a shift of non-union workers was leaving.

• In Louisiana's other labor violence situation, members of the state legislature voted in a mail balloting to appropriate $25,000 to help a sheriff try to enforce the law in his parish near Elizabeth, site of a 14-month-old strike at two paper mills.

• Two girls employed in the laboratory of a synthetic rubber plant are expected to be ousted from their union for allegedly having crossed the picket line to go to work. The plant is operated by U. S. Rubber Co. at Port Neches, Texas, and the office workers'

KINGSFORD'S PICKETS: Involved in their strike, one governor, one congressman.

Glycerine provides the Plasticity

For twenty years, U.S.P. Glycerine has been the principal plasticizing ingredient in the capsules produced by the Gelatin Products Division of R. P. Scherer Corporation, Detroit, Michigan. Since 1933, billions of these soft, elastic gelatin capsules have been used to enclose vitamins, drugs, foods, flavors, lubricating oils, cosmetics, cigarette lighter fluid, golf ball centers, and dozens of other interesting products. Glycerine helps control firmness of the shell and withstands a wide range of temperature and humidity.

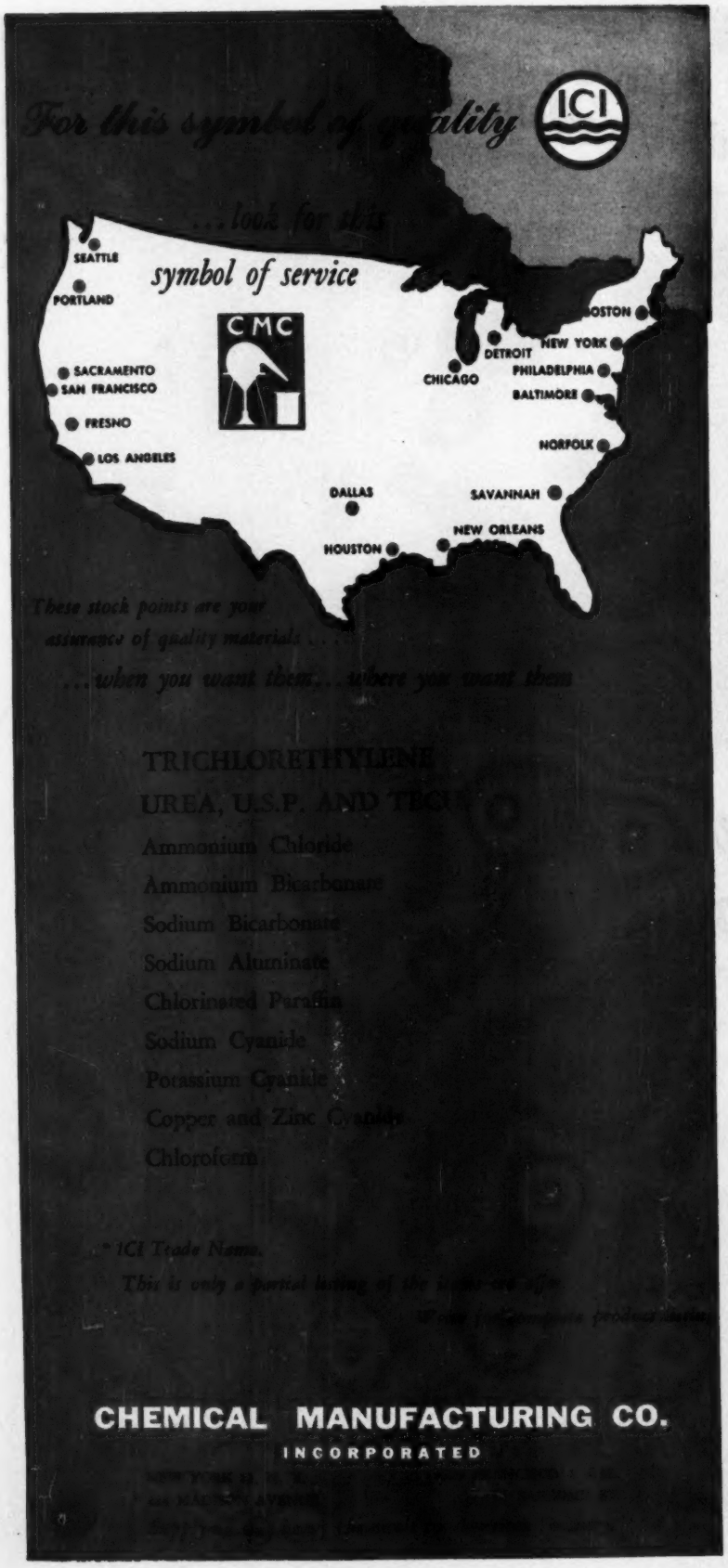
Glycerine has plasticizing properties that permit capsulators to enclose vitamins and a vast number of other products in capsules of many shapes and sizes. Then Glycerine helps these small "packages" retain their moisture, keeps them soft and flexible for easy swallowing or squeezing.

Where capsules are for human consumption, freedom from toxicity is absolutely essential. Here again, U.S.P. Glycerine is the perfect answer.

Glycerine has found wide use in the drug and cosmetic industries because of its great versatility. It's used for sweetening and lubricating. It can act as a demulcent, humectant, solvent, vehicle, and suspending agent. Glycerine is reported to be an ingredient in over half the liquid medications compounded by druggists. Its uses in the food field are similarly wide and varied.

Booklets describing Glycerine's properties and applications in the food field and in drugs and cosmetics are yours for the asking. Write Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

Nothing takes the place of Glycerine



B & I . . . . . .

group of Local 228, Oil Workers International Union (CIO), has been on strike since Sept. 4. Two other members of the local already have been expelled for returning to their jobs.

• Nearly all of the 200 striking maintenance and construction workers at the National Aniline plant in Buffalo, N.Y., reportedly voted to continue their two-month-old walkout. Production workers, represented by District 50, United Mine Workers, are not striking.

• Breakdown of contract negotiations has prompted a strike of about 625 production, maintenance and warehouse employees of the Barrett Division plant at Philadelphia, and 100 office and laboratory employees were expected to join the walkout. Disagreement between the company and Local 398, Oil Workers International Union (CIO), is said to be over fringe benefits.

• Contending that two plumbers should have received double-time pay for certain shift work, nearly 800 construction workers walked out at the Chemstrand nylon plant being built at Pensacola, Fla. Employer is B. F. Shaw Construction Co. of Florida, Inc., subcontracting the job for Du Pont's engineering division.

KEY CHANGES . . .

John E. Powers, Howard M. Dodge, to vice-presidents, General Tire & Rubber Co., Akron, O.

James V. O'Leary, to general manager, Animal Nutrition Div., Commercial Solvents Corp., New York City.

Otto Kardos, to chief research electrochemist, Hanson-Van Winkle-Munning Co., Matawan, N. J.

Thomas R. Worthen, to manager of advertising and sales promotion, International Division, U. S. Rubber Co., New York City.

Gerald C. Alletag, to production and quality control manager, Packaged Chemicals Dept., Philip A. Hunt Co., Palisades Park, N. J.

Edward W. Smith III, to director of sales, **Richard J. Savage,** to director of product application, Marco Products Dept., Plastics Div., Celanese Corp. of America, New York City.

Albert W. Strahorn, to assistant chief engineer, Atlas Powder Co., Wilmington, Del.

Gordon E. Lowe, to assistant plant superintendent, Higgins Plant, Hercules Powder Co., Wilmington, Del.

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New products and profits with Armour Chemicals

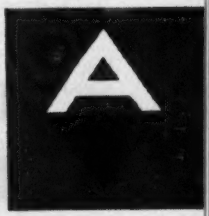
A little bit of silicone goes a long way with Armour emulsifiers

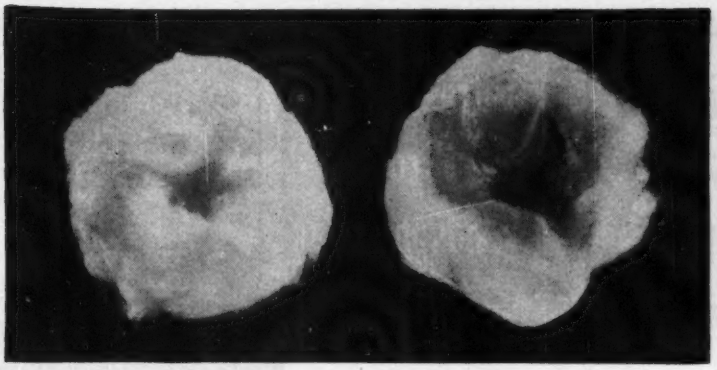
Silicone auto polish gives the gleam to many of the shiny cars on the road today. But there is a real problem behind the manufacture of these popular new polishes. Only 1% to 2% of expensive silicone is necessary to do the job. How can this small amount of silicone be distributed throughout the formula to give uniform effectiveness to the polish?

Armour chemists tackled the problem of spreading the silicone economically with emulsions. Although silicone is incompatible with most emulsifiers, they found three that did the job well—Armac® 18D, Armac HT, and Arquad® 2C with Ethomeen® S/12. After tests proved that these three emulsifiers were excellent under all conditions, Armour developed a successful formula for the economical manufacture of silicone auto polish.

Armour's wide range of emulsifiers has helped solve many similar problems, using emulsions as an economical, safe method for applying many chemicals. Application of finishing agents to textiles is a good example. A long bath is all that is necessary, since cationic emulsions tend to exhaust their oil phases on, and bind them to textile surfaces. Wood, animal hair, cellulose and concrete can also be coated because of this cationic action.

Technical Bulletins F-2, "Armour Emulsifiers", and E-4, "Cationic and Non-Ionic Emulsifiers for Insecticides", offer a clear and complete picture of Armour's chemicals for the emulsion technologist. They also give a good idea of many of the fields where emulsions can be particularly valuable. Send the coupon for free copies.





Cotton does a slow burn to prove Armour oleic acids more stable

The cotton swatch on the left was soaked in Armour's low titer white oleic acid—that on the right in a competitive acid. Together, they prove an important point about all of Armour's oleic acids—their stability.

As the acids oxidized, they began to heat the cotton. But notice what happened to the cotton on the right—it reached 105°, the charring point, in less than two hours. It took 9 hours—more than three times as long—for the cotton on the left, soaked in Armour's oleic, to reach the same point.

Stability like this is important wherever you use oleics—in scouring, lubricating, or finishing textiles. It means longer storage life—and oleics that withstand high temperature processing without breaking down.

Armour's oleic acids owe this stability to our new low temperature solvent crystallization process, which utilizes a solvent that does not react with the raw materials. As a result, you get ester-free oleics—highly resistant to oxidation and rancidity. They have excellent color, low unsaponifiable content, a low pour point, and high acid value. Write today for further information.

All candles aren't alike— here's how Neo-Fat® 18-54 makes them different

Have you ever noticed how the wick of a candle bends as it burns? That's a carefully engineered trick—and the dripless, no-wick-cutting qualities of the candle depend on it. To make sure the wick does bend, one thread of it is pulled tighter than the rest. But also the wax of the candle must permit this wick action.

Armour produces double pressed stearic acid which is tailor-made for candle manufacture. Our crystallization method insures an extremely low ash-content—an important quality for candles, since it means wick action. Other users of double pressed stearic should also look at this improved product. Armour is now using a process which guarantees consistently good stability. Whether you use stearic in cosmetics, buffing compounds, metallic stearates, or candles, stability during processing and in the end-product are essential. Heat stability tests show that our double pressed stearic has the necessary stability (as well as color) to meet all industry's requirements. So send the coupon today for a free sample.

Alkyds stay white when made with this low-cost fatty acid

Heat and color stability of fatty acids used in the formulation of non-yellowing alkyd resins often poses a problem for the manufacturer. Long periods of storage and/or high temperature processing frequently cause the acid to lose its original light color. Naturally this darkens the finished alkyd, causing off-color shades. A fatty acid material that will not break down during long periods of storage, in processing, or cause darkening of the finished alkyd after application, has long been needed.

In answer to this problem the Armour Protective Coating Laboratory has developed Neo-Fat 125—a low-cost raw material for white, non-yellowing air dry or baked resin coatings. Its outstanding color-heat stability makes this acid impervious to time in storage, high temperature processing and exposure after application. It minimizes the chances of yellowing in white or pastel shades due to kitchen fumes, greases, etc. These properties have been proved by extensive field and laboratory tests, which resulted in the conclusion that this is an outstanding raw material for producing quality alkyds economically. Send the coupon for samples and Technical Bulletin A-8, which contains complete information and suggested alkyd formulations.

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- ☐ Neo-Fat 125 sample
- ☐ Tech. Bull. A-8

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Synergizing the Spectrum

A potent new commercial product highlights a trend in antibiotics research and development.

The trend: stretching the antimicrobial spectrum with synergistic combinations of antibiotics.

The product: a combination of streptomycin, bacitracin and polymixin for prophylaxis of surface wounds.

For the mathematician, the whole is equal to the sum of its parts. For the antibiotics researcher, it may well be greater. That's not magic, it's synergism—the moving force behind the newest spearhead of antibiotics development. One of the first to harness the anomaly of antibiotic synergism: Multibiotics Corp. of America, Baltimore pharmaceutical neophyte whose first offering (*CW Newsletter, Oct. 24*) will shortly have its commercial launching.

A combination of three antibiotics —streptomycin, bacitracin and polymixin—the product is able in most cases, claims Multibiotics Corp., "to kill or inhibit all 23 of the recognized types of bacteria found in skin injuries or surgical wounds." That, incidentally, is a range of activity unequalled by any single antibiotic. And, thanks to synergism, it's a spectrum that is wider than the sum of the widths of its three component spectra.

Not only does the trio combat a greater number of different bacteria than the total preyed upon by its members individually, it does the job in reduced doses. Combine this kind of double synergism with stability and a marked absence of toxicity and sensitivity, and you have the basis of Multibiotic's aspirations for what it calls the first "multibiotic."

It would be more accurate to say "the first 'multibiotic' for non-prescription sale to the general public." Antibiotic combinations, though new on the commercial scene, are not startling in concept. They are, as a matter of fact, providing a host of promising new experimental weapons to combat hitherto impervious bacteria, offset the problem of acquired bacterial resistance to individual antibiotics.

Moreover, Multibiotic's brainchild is not exclusive in its field. Since June of 1951, when the product was okayed by Food and Drug Administration, several other "multibiotics" have received FDA sanction for over-the-counter sale. Included in this group are bacitracin-neomycin and bacitracin-polymixin ointments. Multibiotic Corp.'s trailblazer was approved for prophylaxis (not therapy) of minor cuts, wounds, etc., and that stipulation must be clearly stated on the label of commercial preparations containing the antibiotic trio.

PRICE: Two and two make six.

The extra-broad-spectrum antiseptic will appear (soon, according to the Baltimore firm) on pharmacy shelves as the antibacterial ingredient of a gauze pad product. Over-the-counter sale, though a tantalizing commercial tidbit, might well be superseded in importance by professional consumption (for surgical and medical uses). Added possible applications: as a bactericide in soaps, lotions, ointments, toothpaste and body powders.

Job of Weeding: Research culminating in the new "multibiotic" was initially pressed by Bio-Remo Drug Corp., of Baltimore. Clifford Price, antibiotics expert (formerly with FDA) guided the work for Bio-Remo, pulled the synergistic trio from a field of 35 antibiotic contenders for the job. For an estimate of the magnitude of the screening effort, calculate the number of possible combinations of three in a group of 35 different materials.

Sometimes, reports Price, antibiotics were antagonistic, rendering a combination ineffective against many harmful bacteria. The right combination, however, gives a different outcome entirely. Price contrasts the results this way: "In the one case, it's as if two and two were added to make three. In the other, we have obtained an effect comparable to adding two and two to make six."

Here, briefly, is how Price's antibiotic arithmetic breaks down. Acting in concert with its antibiotic mates, streptomycin is active against many gram-negative and acid-fast bacteria; polymyxin combats streptomycin-resistant gram-negative bugs and *Pseudomonas aeruginosa*, a tough pathogenic customer; bacitracin goes after gram-positive microorganisms.

Joint Venture: The death-dealing trio has undergone clinical evaluation at a number of hospitals (Bellevue, Johns Hopkins, Massachusetts General, and others), gave good results against tropical ulcer in Haitian field operations. To exploit the non-prescription "multibiotic," Bio-Remo—an ethical drug firm—promoted the formation of Multibiotics Corp. of America. Bio-Remo will manufacture the product under a patent applied for in Price's name; Multibiotics will handle sales and distribution.

Noteworthy as a pioneering commercial effort in antibiotic synergism, the "multibiotics" development clearly points to a realignment in research: approaching the point of diminishing returns in the quest for new antibiotics, researchers will be turning more and more toward potent combinations of "wonder drugs."

No Middleman

A new page in the awesome annals of Russian invention is being written by chemical engineer Pyotr Zakharov. That, at any rate, is how it looks. Zakharov, according to a published report out of the U.S.S.R., has eliminated the middleman in wood treating by converting the tree to a chemical processing plant. With his leafy factory, the inventor imparts exotic colors to wood, renders it fireproof, fungus-proof, hard or flexible.

"These and other properties," say the Russians, "can be imparted to a tree in a short time during the summer. In the autumn the tree has only to be felled and delivered to the factory where it goes into various articles from handsome furniture and sports

equipment to building materials that do not require any further impregnation."

All this is done, according to the report, "not in a workshop or factory but right in the forest, while the tree is still topped by a dense green crown . . ." Here's how: Zakharov strips a band of bark from around the base of the trunk, drills holes into the exposed wood and inserts flexible tubes into the holes. Into these tubes are passed the chemical agents which the tree readily sucks up.

Scorecard Needed: Use a dye and you reap colored wood. And you could fool a cabinetmaker with the product of the tree's labor. "Not even the expert," vow the Russians, "will be able to name right off the woods these small boards are made of. One of them looks like mahogany . . . it is ordinary pine," confide the Communists. Another looks like rosewood, but it's really birch. There also are green, violet and black boards which are pine, birch and linden, respectively.

By the Zakharov method, the communication states, any tree can be stained any color with a waterproof, sunproof dye. It reportedly took the inventor years of work to develop his unique process. But it appears to have been worth all the trouble. Boasts a grateful Russian report: "Thanks to its indisputable advantages over all existing methods, its low cost and its simplicity, Pyotr Zakharov's original and reliable method of improving wood has won recognition and application in the woodworking industry of the Soviet Union."

•

Taste Probe: Measurement of consumer response to food products—with an eye to predicting response—kept a bevy of industry, government and academic scientists glued to their seats at a recent two-day symposium in Chicago sponsored by National Research Council's Advisory Committee on Quartermaster problems. Products of the meeting included new ideas on increasing sensitivity of food response measurements.

•

Debut: Vacuum researchers will soon be getting acquainted with The Committee on Vacuum Techniques, Inc., a non-profit Massachusetts corporation. Enlisting its members from companies employing vacuum processes, universities engaged in high-vacuum research, and manufacturers of vacuum equipment, the new organization will endeavor—as part of its broad function—to standardize nomenclature, test methods and equipment performance ratings. Avowed larger aims: to disseminate knowledge on high-vacuum technology, stimulate exchange of ideas, encourage research on new processes and equipment.

•

Relaxer: Abbott Laboratories (North Chicago, Ill.) researchers have developed a new short-acting muscle relaxant. It's succinylcholine chloride, is slated for general surgical use.

•

Activity Booster: A new departure in the drive to boost the effectiveness of antibiotics has been taken by researchers of **Lederle Laboratories** (Div. of American Cyanamid Co.). It encompasses the use of metallic complexes of aureomycin which are claimed to possess activity superior to the free base or acid salts. Aureomycin complexes (with a variety of metals) may be prepared by reaction of the antibiotic with a metal halide.

•

Top Honors: Three Hercules Powder Co. (Wilmington, Del.) researchers have just carried off the Navy's highest civilian honor—the Distinguished Public Service Award—for their work on propellants for guided missiles. They are Lyman Bonner, Ralph Preckel and Richard Winer of the Hercules-operated Allegany Ballistics Laboratory. Their award-winning achievement: development of new propellants which permit the use of rockets and guided missiles over a much wider temperature range than was possible with older fuels. The new fuels enhance weapon performance and safety.

•

Making Order: The order of antimicrobial activity of a group of common synthetic antifungal agents has recently been put on record by a research team at Osaka University, Japan. Compared for potency against bacteria, fungi and yeasts, five materials generally line up like this: (1) 8-hydroxyquinoline; (2) sodium pentachlorophenate; (3) 2-methyl-1,4-naphthoquinone; (4) butyl *p*-hydroxybenzoate; (5) dehydroacetic acid. The Japanese found that all but 8-hydroxyquinoline and 2-methyl-1,4-naphthoquinone increased in effectiveness with increasingly acidic media. The former loses potency with mounting acidity; the latter is unaffected.

•

Aimed at Accuracy: Polarographic methods of analysis are now being eyed as promising new allies in the effort to develop better assays for chlorophylls and chlorophyllins. New and Nonofficial Remedies (N.N.R.) and Association of Official Agricultural Chemists' (A.O.A.C.) techniques, currently in widespread use,

Mounting a Combined Attack

PUTTING HEADS TOGETHER on plans for a campaign to develop new, non-pharmaceutical uses for existing and potential Lederle products are Wilbur Miller (*left*) and Benjamin Carey. Director of custom sales and director of research, respectively, the two highlight the joint nature of the new Lederle Laboratories (Div. of American Cyanamid Co.) scope-broadening venture. Scene of the recent skull session: Lederle's Pearl River, N.Y., headquarters.

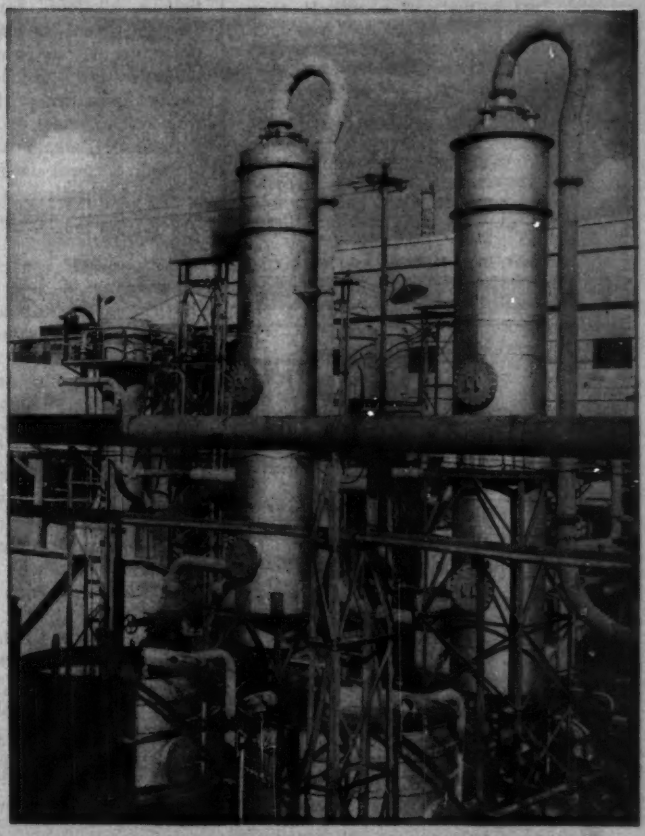
CHEMICO

offers a proven process for the production of

UREA

Chemico's process for the production of Urea is fully proved in actual practice. The overall ammonia efficiency is 97%; conversion of ammonium carbamate to Urea being approximately 76%. The process uses excess ammonia over stoichimetric requirements; the excess being recycled directly without compression.

The market for Urea is large, stable and offers a sound investment opportunity. In the plastics field Urea is the basic ingredient of Urea Formaldehyde Resins. Urea is an ideal fertilizer. It contains 46% Nitrogen. PH is approximately neutral. In the form of 1/16" granules coated with diatomaceous earth, Urea is much less hygroscopic than ammonium nitrate. Nitrogen in Urea is basically cheaper than that available in other solid forms. It is safe to make, ship and handle since it is non-flammable and non-explosive.



This Chemico-built Urea plant of Sumitomo Chemical Co. Ltd. in Niihama, Japan is in full commercial production. Expansion to three times its present capacity is now under way.

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fall considerably short of complete reliability. Researchers Walter Wuggatzer and John Christian of Purdue University School of Pharmacy (Lafayette, Ind.) recently applied polarography to the assay of commercially available chlorophyllins, could not correlate results with labeled concentration. Logical inference: polarography measures a different, and possibly more dependable, component of chlorophyllins than do other methods now in use. Further experiments, says the Purdue pair (in *Science*), may clarify the issue.

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Unmasked: Chemists of Ciba Pharmaceutical Products, Inc. (Summit, N.J.), have arrived at a tentative chemical structure for the new hypotensive alkaloid, Serpasil. Although stereochemical results aren't all in, the molecule has been found to be a member of the indole alkaloids, is a diester possessing the five-member ring system which is characteristic of yohimbane alkaloids. Isolated last spring, Serpasil is now undergoing clinical evaluation in the U.S. It has already been introduced in Germany and Switzerland.

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Time Saver: A new procedure from the Bureau of Standards is supposed to be a real time-saver for evaluating corrosion of ferrous metals in soils. The NBS technique utilizes laboratory corrosion cells (which measure differences in oxygen concentration), gives results in six months. "Usually," states the Bureau, "field tests lasting ten years or more are required." NBS doesn't see the new cells as replacements for field exposure tests, does think the cells can be useful in selecting materials for such tests.

•

Opening Soon: Linde Air Products Co.'s (Union Carbide and Carbon Corp.) sparkling new, $350,000 laboratory building is slated to begin operations within the next week. Earmarked for engineering investigations, the new building adjoins the company's main Buffalo (N.Y.) research laboratories.

•

Millions for Research: Totals are in on the first group of research awards made by National Science Foundation for fiscal 1954. NSF has allotted $1.3 million (in 123 grants) for fundamental research in the physical and biological sciences, support of miscellaneous functions associated with research in these fields.

•

Resin Roundup: Research Information Service (New York) is offering a new bulletin containing translations of German patent applications in the field of synthetic resins. Materials covered: acrylics; silicones; polyesters; polyamides; polyurethans; vinyl, ethylene and styrene polymers.

•

Amino Acid Update: Mann Research Laboratories, Inc. (New York) has just boosted its amino acid offerings to 240—claimed to be the largest number of different amino acids and derivatives commercially available from one firm. Earmarked chiefly for biochemical research, the roster of materials encompasses a broad range of carbobenzoxy amino acids, all L, D and DL acids.

•

Unexpected Aid: Despite its propensity for fogging film, radioactivity could be put to rewarding labor in the photographic industry. Armour Research Foundation (Chicago) physicists foresee a future for radioactive silver in the production of photo films, believe the isotope will promote better control (to an accuracy of 2% to 5%) of emulsion thickness. The trick, according to Armour, is done by making radioactive a very few of the silver atoms in a batch of emulsion, using the radiation as a measure of thickness during film manufacture. Because of the extremely low level of radioactivity needed for the job, film produced by the proposed method is not damaged.

•

Add Four: City Chemical Corp. (New York) has added four compounds to its schedule of fine chemicals. The newcomers: lithium acetate (anhydrous); sodium asparaginate; molybdenum sesquioxide; and cobalt bromide (anhydrous).

• News of a larger addition comes from Rochester, N.Y. Distillation Products Industries (Div. of Eastman Kodak Co.) has tacked 47 compounds to its list of more than 3,500 available organic chemicals. They're all contained in the new supplement to DPI's current (number 38) chemical product list.

•

Resin Emphasis: Plastics Div. of Celanese Corp. of America will soon take over a new engineering layout at the company's Summit, N. J., research laboratories. Included in the new facilities are an outdoor concrete slab (for the erection of closed-system continuous pilot units) and a 50-foot-high building (for control panels and open pilot systems). The construction, Celanese explains, "reflects . . . emphasis on expansion in the synthetic resin and polymer field."

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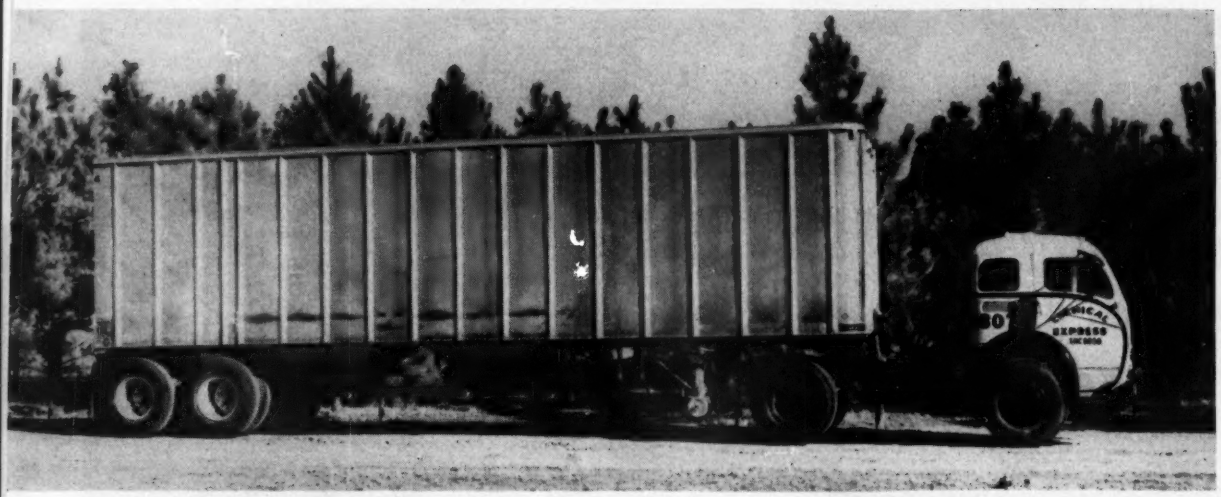


TO REFINERIES: Special design aluminum hopper-bottom truck hauls silica gel catalysts.

DISTRIBUTION . . . .

Chemicals Take the Highway

When a growth industry is confronted with an unusual set of hurdles, you can be sure there'll be no time lost in devising changes to fit the circumstances. The chemical makers in the great open spaces of the Southwest face special transportation problems; this is why trucking of chemicals in this region is expanding with unusual vigor.

While it is generally true that transporting chemicals by truck is on the increase, perhaps nowhere else is the trend so noticeable as down in Texas. An indication of what's happening can be found in the experience of two Houston trucking firms.

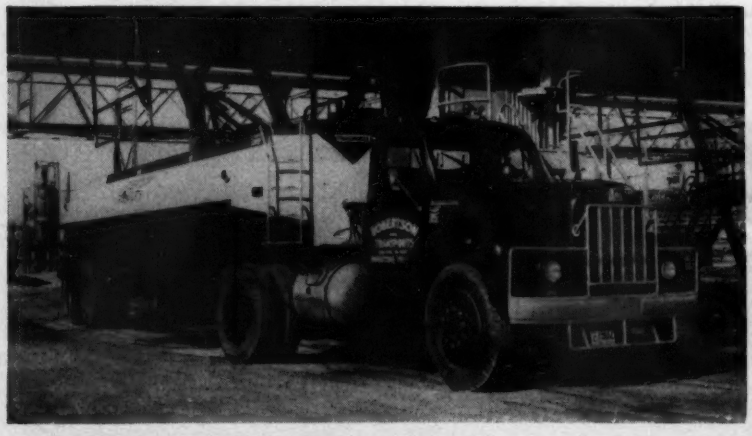
Four years ago both of them began hauling liquid chemicals. Today, between 20 and 25% of the volume of products they handle are chemicals.

One firm now operates a fleet of 30, the other operates 32 special tank trucks variously fabricated of stainless steel, Heresite-lined, rubber-lined and pressurized. In addition, both firms use general-purpose tank trucks for chemicals. What's more, so thoroughly convinced are these companies that chemical trucking is only in its infancy that both have considerable special trucking equipment on order.

Weight Lift: The common carriers, of course, have hauled chemicals, both liquid and dry, from the time the first chemical plant began operations in this area. But shipment by truck got a decided boost about three years ago, when the state of Texas raised the weight limit for chemical-carrying trucks from 48,000 to 58,420 lbs. gross.

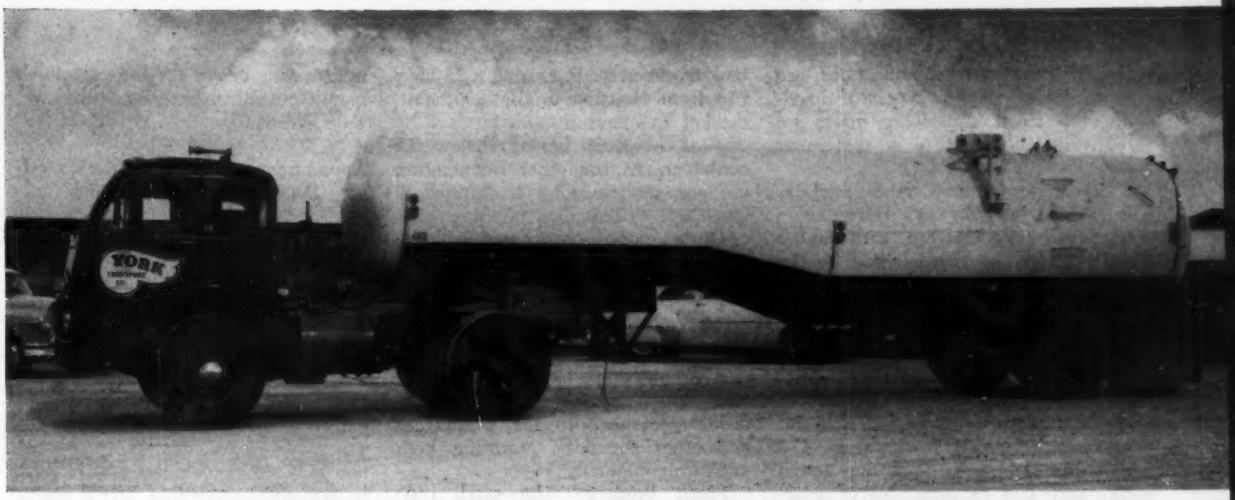
Hauling distances are increasing, too. In the early days of trucking chemicals in bulk, the short haul was the usual thing. Today, truckers are carrying chemicals long distances in, across and out of Texas. Recently nitric acid , ethylene glycols and ethanolamines were shipped across the Louisiana-Texas line. And several trucking firms are hopeful of early approval of their applications before ICC to truck all chemicals in bulk across state lines into Mississippi, Louisiana, Arkansas, Oklahoma and New Mexico. The ICC approvals would give chemicals trucking a tremendous lift.

Growth Rate: Because the growing chemical industry presents changing conditions to the carriers as well as to customers, failure to adjust to the



GENERAL PURPOSE: For handling toluol, xylol, other solvents or . . .

STEAM HEATED: Coils in bottom



TO FARMERS: LPG and anhydrous ammonia pressure tanks deliver direct.

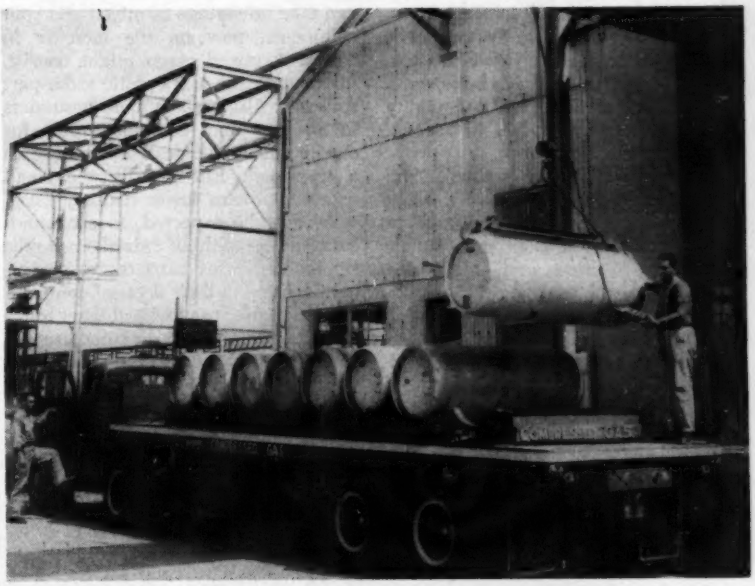
changes can often work a disadvantage. A case in question is that of rail vs. truck rates.

At present, most of the estimated 160,000 carloads of chemicals produced within 200 miles of Houston continue to move by rail. However, percentage-wise, rail shipments have been slipping relative to movement by truck.

Commenting on the unusual characteristics of the chemical industry and their bearing on transportation needs, George Miller, of Dow Chemical's Texas Division traffic department, pinpointed several reasons why circumstances favor trucking over rail shipments.

Speaking before the Tulsa meeting of the National Gasoline Assn. of America, Miller made these comments:

"Chemical prices generally decrease as products develop from the experimental stage to large-scale production. Unfortunately, however, rail



TO INDUSTRY: One-ton chlorine cylinders on cradle (above); muriatic acid in rubber-lined tank (below).

keep 73% caustic from freezing.

freight rates and classifications are often set in the early stages of development of a product when prices are high and the quantity of movement low.

"If these become established as traditional levels, a fast-growing chemical may end up with higher rail rates than are warranted by the size of movement and value of the product."

Cost of Loss: According to Miller, unrealistic insurance rates are also working against the rails. He claimed:

"It may also be that the cost of products plays too large a part in determining the rate level set by the railroads. In computing the actual insurance cost to cover loss of material shipped in tank cars, we have seldom found that the actual loss over a period of time would increase transportation cost over 2 to 3¢/cwt. even on products valued up to $500/ton. Yet the rate differential between a $50/ton and a $500/ton commodity often may range from 50¢ to $1/cwt. on long hauls.

"In general," Miller opined, "the truck industry has recognized the low actual loss of material shipped in bulk and have smaller differentials between low-price and high-price products."

No Fuss: Proponents of chemical trucking claim other advantages. One of these is the relatively low investment requirement. The chemical manufacturer does not have to buy or lease special shipping equipment, nor does he have to provide cleaning and repair facilities as he would if shipping by rail.

The trucker supplies the special tank trucks and provides for their maintenance. He merely requires reasonable assurance that the equipment will be used fairly regularly and for a sufficient length of time to amortize.

On this point, Miller pointed out at Tulsa, "Combine one of the nation's fastest growth rates, high capital investment per worker and a high obsolescence rate and you can appreciate the constant need of the industry for additional capital. As a result, it is particularly desirable for the industry to avoid excessive investment in transportation equipment."

Variety: The increase in trucking volume is also showing up in the variety of different truck designs. One firm is hauling liquid chlorine in one-ton containers from Deer Park to all corners of Texas. Using a special truck, it cradles the containers crosswise.

Special temperature requirements are being handled too. Methyl vinyl pyridine is being shipped in stainless tank trucks at 20 F. During a 22-hour trip from Houston to the Southeast, the low temperature is maintained by dry ice in special bunkers below the container. At the other temperature extreme, molten sulfur is shipped in insulated, steam-coiled tanks.

Other special types now include:

- Rubber-lined for muriatic acid.
- Heresite-lined for sulfuric acid.
- Stainless steel tanks for methyl-, ethyl-, and isopropyl alcohols, nitric acid, caustic and other materials.
- A new, single-barrel, high-tensile-steel tank truck for handling anhydrous ammonia, propane, propylenes and other chemicals requiring high pressure containers.

Small Business: The small consumer of chemicals has not been forgotten in this upsurge of trucking. He can take advantage of mixed and split shipments, now on the increase in Texas. A mixed cargo might consist, for example, of part caustic soda, part soda ash. Also, two or more customers in an area may combine orders for one or more chemicals amounting to a truckload. Either way, the small operator obtains lower delivery rates.

As may be expected, to accommodate this growth of mixed and split shipments, Texas carriers are continually adding to their fleets of compartmented tank trucks. Another trend resulting from compartmented trucks: many formerly drummed shipments are now going by tank. It's simply a matter of saving container plus handling and filling costs.

Eyes Open: But regardless of whether a chemical company calls itself big or small business, it would seem to be only good business for anyone looking for new ways of shipping chemicals to keep his eyes not only on trucks, but also on the railroads' competitive countermoves.

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In Process: United States Rubber Co. is busy in two directions at once:

- In Jacksonville, Fla., it is building a 40,000-sq.-ft. distributing branch office and warehouse. The office will serve the entire state of Florida and parts of Southern Georgia.
- In Naugatuck, Conn., it is in the throes of buying property for a warehouse from the New York, New Haven & Hartford Railroad. Expected to cost around $4 million, the warehouse will replace present ones in Waterville, Beacon Falls and other neighboring communities.

•

Northward: North American Cyanamid Ltd. has opened new general offices at its Niagara plant. The move will centralize the executive and administrative offices for the company's manufacturing operations at Niagara Falls, Welland, and Ingersoll, Ont.

•

Appointments: The Chemical Products Division of Archer-Daniels-Midland Co. has appointed Westwood Chemical Co. as New York sales agent for rubber makers' stearic acid.

- Synvar Corp., Wilmington, has named W. R. Husen Co., East Orange, N.J., as its special representative to sell its industrial resins.

•

Dow Addition: Dow Chemical Company's Plastics Dept. is establishing a new development and service section in coatings technical service. The section will concentrate on the application of monomers in the manufacture of vehicles and resin intermediates used in the paint and coatings industry.

•

Atlanta Outlet: The Organic Chemicals Division of Monsanto Chemical Co. has opened a district sales office in Atlanta, Ga. Office head will be Howard A. Lovejoy, Jr.

•

Detroit Warehouse: Koppers Company's Chemical Division now has a warehouse at 1448 Wabash Ave., Detroit, Mich. It is the seventh in a series to expedite product delivery.

•

Hot and Cold: Ansul Chemical Co. has opened a new office and warehouse building at Kansas City, Mo. C. H. Armstrong, fire equipment manager, and Roy McCrady, refrigeration product manager, will service territory including Missouri, Kansas, Nebraska, southern Illinois, Arkansas, Oklahoma and the Texas panhandle.

•

New Company: Just formed is the Griffin Chemical Co. in Louisville, Ky. The firm will be a dealer in products of Allied's General Chemical Div.

•

Alcohol Sulfates: American Alcolac Corp., Baltimore, is now selling under the name of Sipex a series of new technical-grade lauryl sulfates, viz., the sodium, magnesium, potassium, ammonium, mono-, di- and triethanolamine salts. The prices of these fatty alcohol sulfates, according to the company, are lower than those of corresponding cosmetic grades.

•

Bulletin: Carbide and Carbon Chemicals Co. has just issued a technical bulletin on ethyl acetoacetate. Included are its physical and chemical properties, specifications and shipping data, as well as uses and potential applications.

• Davison Bulletin •

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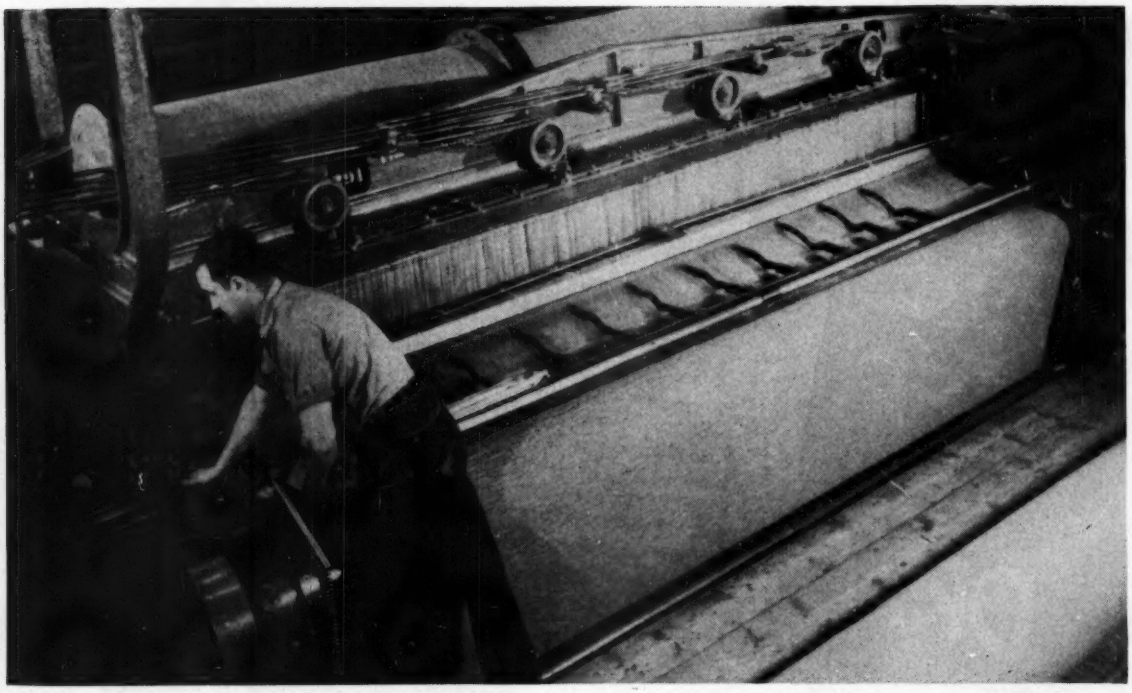

RUG LOOM: Weaving in a special chemical coating makes . . .

Rugs That Stay Cleaner

Chemical treatment for rugs and carpets, designed to retard permanent soiling, is latest pitch in rug promotion.

Developed particularly for fabrics made of cotton and synthetic textiles, the process may soon find application in drapery, upholstery.

Colloidal silica treatments appear to be most widely used now; they're applied to the finished carpets at the mill. But specialty rug shampoos may soon make it possible for professional rug cleaners to "soil-proof" rugs in homes and commercial establishments.

It was with mixed feelings that the carpet trade greeted the promotional campaign on A & M Karagheusian's (Gulistan carpets) new Albany, Ga., rug plant last month. For Karagheusian, touting the tufted cotton rugs the firm makes, proudly spoke of a new process used on the Albany factory's output: Resistsoil, a chemical treatment designed to retard permanent soiling of pile and tufted fabrics.

Processes of this nature have been a whispered-only project of nearly all rug companies for the past several years; even now most firms are reluctant to tell of their processes.* Admittedly, however, chemically treated rugs have been sold for at least two years.

Built-in Broom: Despite considerable manufacturer resistance, word has seeped out on the processes—Mohawk Carpet Mills, Inc. (Amsterdam, N. Y.) in its stockholders meeting last spring made reference to its Chex Soil treatment, but gave few details. Since, the firm has licensed the process as widely as it can—Karagheusian's Resistsoil is one such licensed process.

Responsible for the heavy interest in dirt-retarding is the increasing use of vegetable and synthetic fibers (rayon and acetate, for the most part; nylon and similar synthetics are too expensive for broad use in rug weaving). According to the Carpet Institute, Inc., close to 42% of the 62 million square yards of woven rugs produced last year were synthetic or synthetic-blends—a big jump over '51's 29% (of 60 million square yards) of synthetics and blends.

Added to that as a market for carpet-treating chemicals are tufted rugs, which are almost entirely cotton. Last year 15-18 million square yards of tufted rugs were turned out, a third-again boost over the previous year's production (10-12 million).

As applied to the flooring material made of synthetics, the treatments cannot halt deposition of tracked-in or airborne soil. But what they apparently can do is make it much simpler to remove ground-in dirt. Wool has a natural resistance to such soiling; these processes enhance this characteristic. The result is that well-cared-for rugs stay cleaner, and the colors remain truer—important where they match drapes and furniture.

All for Mohawk: Mohawk, which is one of the leaders in use of soil retardants, is treating all its synthetic and synthetic-blend carpeting now—an estimated 25% of its extensive carpet output. Most other firms are some-

* Advanced as one reason for the hesitancy: until existing stocks of rugs are sold, there is no point getting the public in a mood to demand treated rugs.

what reluctant to give out figures, and the Carpet Institute, to which many of them belong, has not as yet compiled figures on yardage currently being treated.

The process as worked out and patented by Mohawk (U. S. Pat. 2,622,307) makes use of colloidal silica. It can be applied to the fibers before the looming step (*see cut*), or to the finished rug by dipping, spraying, or brushing. The recent trend has been toward application to the finished product by means of a "kiss roll"; in that way only the visible portion is treated, which is enough to do the trick. There had been some evidence that treating fibers before weaving results in some loss of the coating.

By the Mohawk process, the colloidal solution is diluted to about a 5%-solids silica (dry weight). Put on as an aqueous suspension, the silica is dried onto the fibers, so that about 0.25 oz./sq. yd. remains. (0.15 to 0.5 oz. is suggested in the patent; more than 0.5 oz. apparently "dusts off.")

Sandy Carpets: In its patent, Mohawk suggested silica particles 6 microns or smaller. It offered as an example Atta Clay SF, a complex hydrated aluminum magnesium silicate containing in its commercial form about 67% silicon dioxide, plus aluminum, magnesium, ferric and calcium oxide. It is no secret, however, that Du Pont is selling its Ludox for anti-

CARPET SWEEPING: For less permanent soiling, silica.

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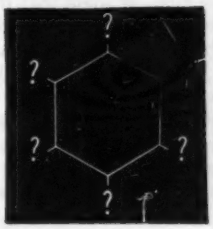


DU PONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

ORGANIC CHEMICALS DEPARTMENT

soiling purposes, and Monsanto is similarly selling its Syton.

Since addition of the silica tends to lighten the color of the rug, Mohawk has also explored addition of other products to the coating solution. Carbon black can be used to darken some fabrics, and other colored inorganic dusts are suggested for plain-toned carpeting.

Shampoo Added: Preferentially, the treatment is mill-applied. But Mohawk has investigated applying—or renewing, since the silica might be removed after 2-3 shampooings—the coating to rugs that are already in use. One idea that might catch specialty makers' eye: the silica can be included in the foaming detergent shampoos that professional rug cleaners use. The colloid is added to the foaming mix, remains behind after the rest of the detergent has been vacuumed off.

The process probably has its drawbacks—there is some difficulty in getting even application, or so say several of the rug manufacturers.

Everybody's Got One: Mohawk is far from the only firm that has worked on the soil retardants, although more is known about its process than others. Nearly every carpet manufacturer is supposedly devising its own techniques.

Alexander Smith Carpet Co. (Yonkers, N.Y.) has one which it worked out with the aid of a major chemical company. Juvenizing, as the process is termed, can presumably be applied to nearly every type of fabric —pile and flat types—and shows great promise in a wide range of materials, the firm avers.

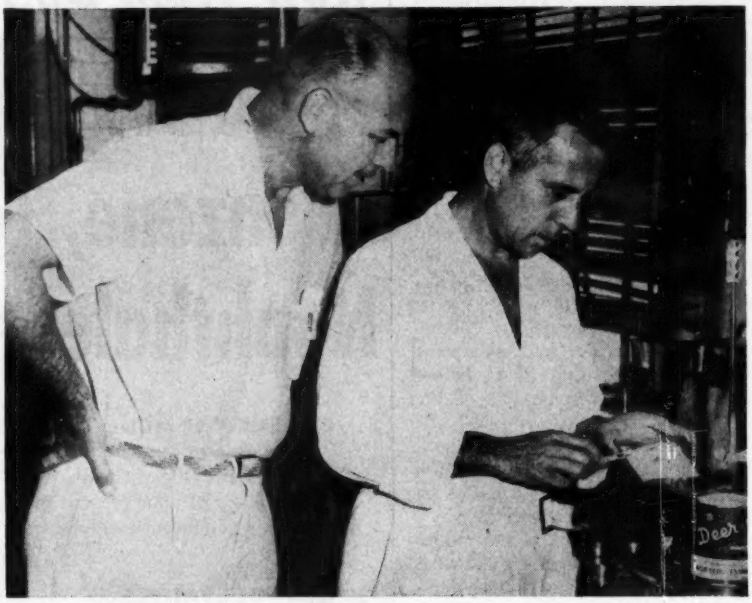
Whether or not the "untreated existing stocks" explanation is the actual reason behind the carpet industry's unpublicized use of the silica treatment is hard to determine. It's the opinion of some that if the treatment is as good as is hinted, there would be none of this shyness to talk.

But Karagheusian has lifted the veil—and word is that within a week it will bolster its claims with results from U.S. Testing labs. It presages a promotional flurry that might well be significant to many specialty makers.

Cactus Special

In the bright glare of the southwestern sun, the temperature hit 96 in Phoenix last week. Harsh sun and high temperature spell out the problem facing paint makers of the Southwest—a problem that has been turned to profit by a pair of resourceful Arizona manufacturers.

The two firms, Deer-O Paints and Chemicals, Ltd., Phoenix, and Pioneer Paint Co., Tucson, have been in business since the '30s, supplying the specially formulated coating material for the hot, dry Southwest.



DEER-O DUO: Mueller and Gareissen sell on-the-spot formulation.

And in that nearly twenty years they have built up a sizable business in their area:* Deer-O expects to move close to $1 million's worth of paints through its 750 outlets this year, and though Pioneer won't give out sales figures, it sells through more than 250 dealers.

Healthy Start: Neither firm was started by native Arizonians; both owe their beginnings to founders who came to Arizona for reasons of health and founded profitable enterprises, too.

Pioneer got its start in 1934, when Harry Bacal, its president, left his job as development chemist and plant manager of the Cloverleaf Paint & Varnish Co., New York, and headed for Tucson. At that time there were no paint makers in either Arizona or New Mexico—and seeing an opportunity in "pioneering" the business, Bacal began formulating and selling special paints for the sunny, alkaline weather of Arizona under his Pioneer label.

Deer-O was formed in early 1937, after Gordon Jones (president) was forced to try Phoenix for his health. Deer-O really didn't make much of an impression saleswise until early 1938, when Victor Mueller, who had been with Glidden Co. in New York, visited Phoenix with the aim of capitalizing on the special conditions of the Southwest.

The special conditions of the Southwest include a sun that blisters down 334 days a year, and temperatures that run from a top of 140 F to a low of 45-80 at night. Low humidity compounds the problem. The result is weather that burns out vehicular oils, oxidizes pigments, checks dried film.

Formulate to Fit: To last long under these conditions, a typical oil paint must be compounded to give good plasticity and resistance to ultraviolet light. Slow-acting drying agents are employed—amount must be varied from winter to summer to take care of differing humidities. Deer-O estimates a quarter of its research program is aimed toward modifying various resins to give lasting sun resistance.

Pioneer's latest product tailored for the Southwest is a latex-base interior paint, Satin-Flo. As Bacal puts it, "We weren't satisfied with the rubber-base paints put out by national companies; it was too thin for this area. So we decided to develop one of our own. We worked on the formula for two years before we succeeded in getting just what we wanted. This rubber-base paint will take more abuse in the Southwest than any other paint on the market."

Perhaps Deer-O's most widely known product is its Sunshield trim paint, which it has shipped all over the nation to people seeking a sun-resistant paint. But almost a fourth

* Arizona, Southern California, New Mexico and old Mexico for Pioneer, plus Idaho, Nevada, Utah, and western Texas and Oklahoma for Deer-O.

hydrochloric

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Mining-Refining-Manufacturing Caustic Potash—all standard grades; Carbonate of Potash—all standard grades; Potassium Chloride—refined and technical grades; Sulfate of Potash; Liquid Chlorine; Ferric Chloride; Hydrochloric Acid.

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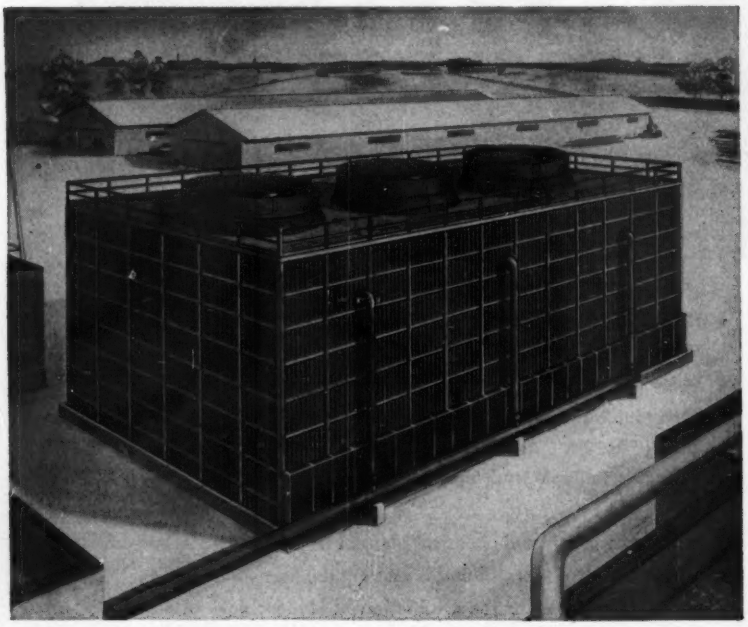
SANTA FE'S NEW "MD-54" COOLING TOWER CUTS INITIAL COSTS, INCREASES PERFORMANCE

Los Angeles . . . Cooling tower *design* has undergone a number of significant improvements. After holding faithfully to the basic pattern, the Santa Fe Tank & Tower Company, Los Angeles, has taken an aggressive step toward developing a cooling tower with a substantially improved construction design. The newly designed tower is said to require fewer parts for construction, which in turn, allows for faster erection and less maintenance.



Santa Fe engineers branded their new tower the "MD-54" which is the result of a series of laboratory and field tests that measured all *performance* factors in relation to its new structural features. *Simplified* construction and better utilization of materials in the "MD-54" is the *key* to the new design and improved performance.

Santa Fe engineers have designed for the "MD-54" two separate and distinct standard types of wetted surfaces. After a series of extensive tests, it was found that one surface is best suited to lowest first cost, and the other surface to the lowest evaluated cost on an amortized basis. This makes the "MD-54" the most adaptable to meet the requirements of each individual plant.

According to Santa Fe, the basic design of the "MD-54" cooling tower allows for the largest possible range of size variations.

A new bracing system designed for minimum obstruction to the free flow of air results in better cooling performance. This new bracing requires only two specially designed joint connectors in conjunction with 3 standard braces to build any size or combination of sizes, shapes of the "MD-54" cooling tower.

Santa Fe Tank & Tower Co., 5401 So. Boyle Ave., Los Angeles 58, California

SPECIALTIES . . . . .

of its business is to Phoenix-area industry—baking and dipping enamels, and a number of special-use paints, such as a lactic acid-resistant paint for dairies, a wet-wall paint, and a gasoline-proof paint.

Deer-O's newest product, introduced just a few months ago, is a premium-price polyvinyl protective coating, a wipe-on material for furniture called Plastigleam. Another recent product is a premium-price liquid porcelain enamel.

Both Deer-O and Pioneer maintain a close relationship, wherever possible, with their customers; they emphasize that they formulate for specific area problems. Bacal and Chemist Dave Jones handle formulation research at Pioneer; at Deer-O, Vic Mueller is aided by Oscar Gareissen.

National paint manufacturers, as well as other Pacific Coast firms (Fuller Paint Co., San Francisco, is a prime competitor) are all fighting for the Southwest's $2½-3 million paint business. But Pioneer and Deer-O so far find that custom formulation has given them the edge, and it's an advantage they intend to keep.

Recorders' Record

Experts have long dreamed of an ink that wouldn't clog delicate recording instruments, that wouldn't fade with time, that could be erased without leaving any traces.

A nuclear physicist in Tulsa, Okla., Robert E. Fearon, says he has an ink, called Fearon's Acetate Ink, that possesses all these properties. Besides being usable on surfaces where drawing ink is normally employed, it can be applied to clear smooth sheets of cellulose acetate, cellophone, methacrylate plastics, pure polystyrene and glass.

Application is by the common types of pens and brushes, and by spray techniques. It is also adaptable to mass colors.

Fearon, who is the owner of Electrochemical Labs., Tulsa, claims his ink has "true" adhesive qualities (i.e., the adhesion is inherent its composition) and does not owe its adhering ability to mere soapiness. Other claims: it's nonpoisonous and relatively noncorrosive.

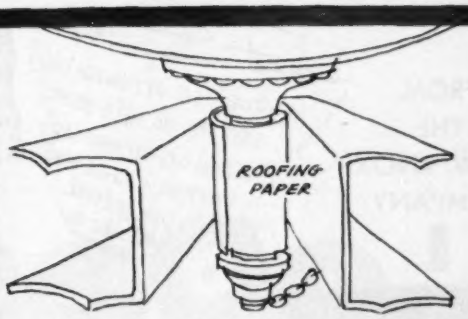
On the market since the early part of the year, the ink is now being marketed in about half the states and in several foreign countries.

•

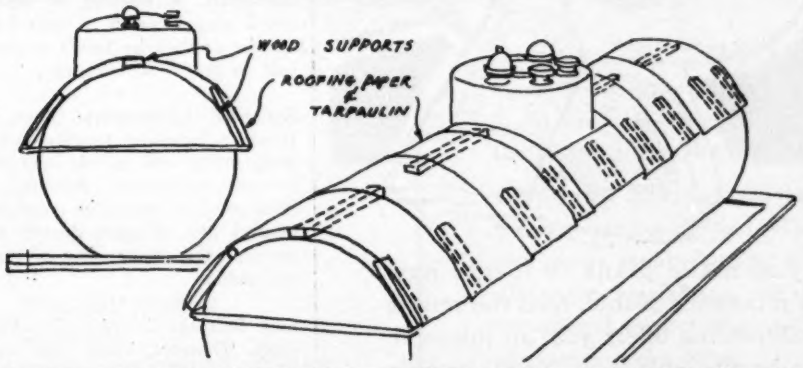
Southern Move: Permachem Corp., currently located in New York, is acquiring a plant and laboratory facilities in West Palm Beach, Fla. The

from Monsanto
technical service

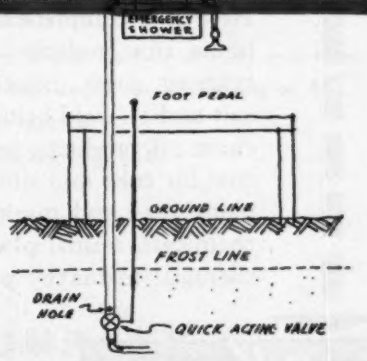
3 Tips on How to Handle Phenol More Easily



FASTER UNLOADING IN COLD WEATHER is made possible by simple cylindrical shield of roofing paper or cardboard around boot. Shield aids unloading by confining steam from hose to localized area, thus warming entire section to promote rapid melting. This procedure may save you plenty of valuable time in cold weather.



ELIMINATE "FREEZE-UPS" AT TOP OF CAR by spreading tarpaulin or covering of roofing paper over top of tank car. This easy-to-use procedure will promote rapid melting of phenol on the hard-to-reach upper surfaces of the car shell.



ALL-WEATHER SAFETY SHOWER placed at unloading facilities gives added insurance against worker injury. It can be constructed easily as shown in diagram and should have a valve below the frost line as well as a small drain hole above the valve. Such a shower will not freeze even in coldest weather.

FOR MORE HELP ON PHENOL HANDLING *write to our technical service. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St, Louis 1, Missouri.*

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SPECIALTIES . . . . .

firm is pushing a new process for germ-proofing a variety of products by using silver.

•

Fire Preventer: Wetter water, made so by means of a chemical wetting agent, is being tried by the Connecticut State Forestry Department. The Department employs a compound sold by Beacon Co. (Boston) under the tradename Pyrodine, puts in about 2½ lbs. per 1,000 gals. water. Better ground penetration is achieved by use of the agent, which prevents roots and humus from burning, and treated water is said to extinguish a fire faster.

•

Metal Paint: Sapolin Paints, Inc. (New York) is now marketing an aluminum paint designed for home uses where temperatures up to 1,200 F are encountered. A mixture of finely divided aluminum in a resin base, it can be applied by brush or spray, is said to dry in 30 minutes.

•

Extended Adolescence: Some 13 of Hawaii's 28 sugar plantations are experimenting with maleic hydrazide to control first-season tasseling. The compound is currently employed to control rate of grass growth and to increase the storage life of potatoes and onions.

•

Easy Release: Chemical Development Corp. (Danvers, Mass.) now markets a new mold release for polyester, epoxy, and other materials. The company says that with the product it is no longer necessary to pry and hammer large parts in order to remove them from the mold.

•

Reaction Reducer: Ciba Pharmaceutical Products, Inc. has combined the antihistaminic drug, Pyribenzamine, with penicillin to minimize or prevent sensitivity reactions to penicillin. Made in oral tablets, the new combination is called Penicillin PBZ.

•

Anti-Flame Coating: Industrial Chemical Co. is now manufacturing a new composition for use as a flame-resistant coating on insulated wires, roofing elements and treated papers. Called Charkote, it is said to be less sticky than stearine pitch and is more flame-resistant than the best grades of stearine pitch previously available.

•

New Owner: The Roach Paint Co. (Dallas, Tex.) has been sold to T. R. Rodgers. The company, which will retain the Roach name, manufactures paint, varnish, and related products for both retail and wholesale trade.

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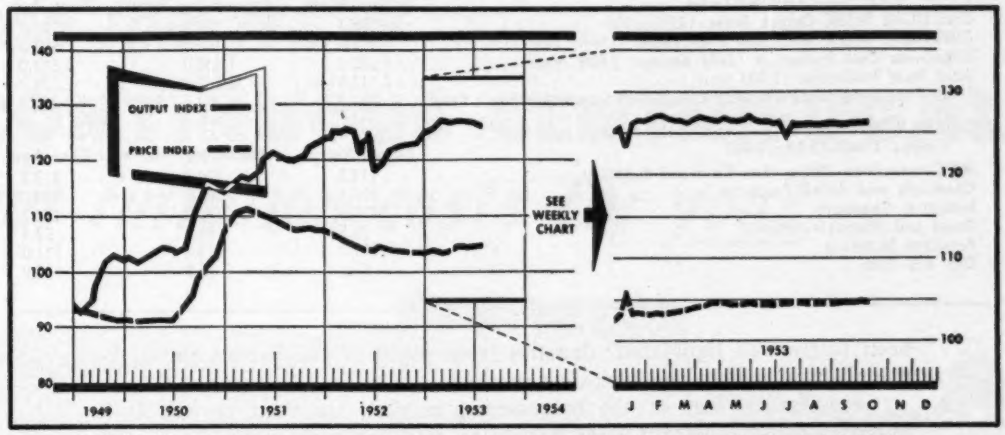

CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Market-place activity this week may well be summed up in one word—quiet. But paradoxical as it sounds, at least one observer labels it a bustling quiet. He explains that although the chemical industry is going through a slight, not unexpected, fourth quarter easing, sellers have stepped up their competitive hustling, while buyers, for the most part, have not curtailed purchases too drastically.

•

Weather, however, continues to play an important part in chemical movements. For instance the extended mildness is slowing demand for methanol to the antifreeze trade. Reason: canners painfully remember the unseasonally warm falls and winters of the past two years, the resultant over-loaded shelves.

It's really too early to determine yet what level antifreeze retail sales will hit, but chances are now-firm methanol price tags could be influenced—one way or the other—by that demand.

•

And the unusually dry conditions prevailing over most sections of the country have mixers and fertilizer material makers wailing in unison. Potash salts, ammonium sulfate and superphosphates—which would normally be going into mixes for direct use in fall plantings—are being side-tracked into inventory at manufacturers' plants.

Hope is that accumulating stocks can be moved later this month, but that depends on whether the weather makes later plantings possible.

Although ammonium sulfate prices have been whittled (CW, Market Letter, Oct. 24), tags on the other two basic fertilizer materials appear to be holding steady despite the generally long supply position.

•

Producers may be recovering from the long-time weather-buffeting that undermined pesticide sales, production and price. At least one, Geigy, last week hiked its DDT schedules, is now quoting upped delivered prices as against the previous f.o.b. plant basis.

Though the trade hasn't yet officially followed suit, chances are the higher prices will be generally posted. Reasons: Piled up stocks have

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.1	126.2	122.6
CHEMICAL WEEK Wholesale Price Index (1947=100)	105.0	104.9	102.6
Bituminous Coal Production (daily average, 1,000 tons)	1,500.0	1,546.0	1,387.0
Steel Ingot Production (1,000 tons)	2,112.0(est.)	2,142.0(act.)	2,229.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	256.3	251.0	233.6

MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	114.8	114.9	113.2
Chemicals and Allied Products	106.7	106.3	104.0
Industrial Chemicals	120.0	120.2	114.3
Drugs and Pharmaceuticals	93.5	93.5	92.1
Fertilizer Materials	113.0	113.8	111.0
Oils and Fats	51.1	46.9	48.9

been fairly well liquidated; demand from south of the border should be stepping up within the next few weeks.

In the face of the brightening market, Du Pont reveals it is withdrawing its current DDT schedules, will likely come back with the firmer prices.

•

Underscoring the upcoming South American Market for insecticides is the recent statement by the Insecticide Industries Syndicate tallying Brazilian requirements. Half of the needed $6-million importations, says IIS, must come from the U. S. Top requirement is for BHC ($746,500 worth), plus sizable quantities of DDT, ground sulfur, other pesticides and related chemicals.

•

Related products of a different sort have Reichhold Chemicals on the verge of releasing details about its new pentaerythritol-formaldehyde installations at Tuscaloosa (Ala.). Pre-announcement trade talk pegs formaldehyde output there at some 30 million lbs./per year; PE at about 5 million lbs.

Bulk of the latter will go initially for captive consumption, but Reichhold is scheduled to move into the market as a seller later on. This despite the widespread industry expansion now under way (CW, Aug. 1).

One reason reportedly behind Reichhold's surprising entrance into PE production is glycerine-supplier Shell's notice that glycerine price concessions will not be renewed when current long-term contracts expire in December. Result: Reichhold will likely switch formulations to use more of its own penta, less of the purchased glycerine.

Reichhold also plans to expand the Watson-Park Co., formaldehyde facilities (CW, Feb. 28) (Ballardvale, Mass.). Though pinpoint figures are not available, chances are present capacity (roughly 22 million lbs./year) will be upped substantially. There's nothing in the works, however, concerning possible pentaerythritol production either there or at Reichhold's Seattle formaldehyde plant.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending October 26, 1953

UP

	Changes	New Prices		Changes	New Prices
Copper metal, electrolytic, dlvd., Valley basis	$ .005	$ .295	Crude cottonseed oil, tanks So. East	$ .0025	$ .1375
Crude coconut oil, tanks, f.o.b. Pacific Coast	.01	.17	Tallow, edible, tanks, dlvd.	.01	.12

DOWN

	Changes	New Prices		Changes	New Prices
Argentine casein, acid precip., grd., duty paid	$ .0075	$ .225	Sodium tungstate, tech., kegs, dlvd. East	$ .25	$2.65

All prices per pound unless quantity is stated.

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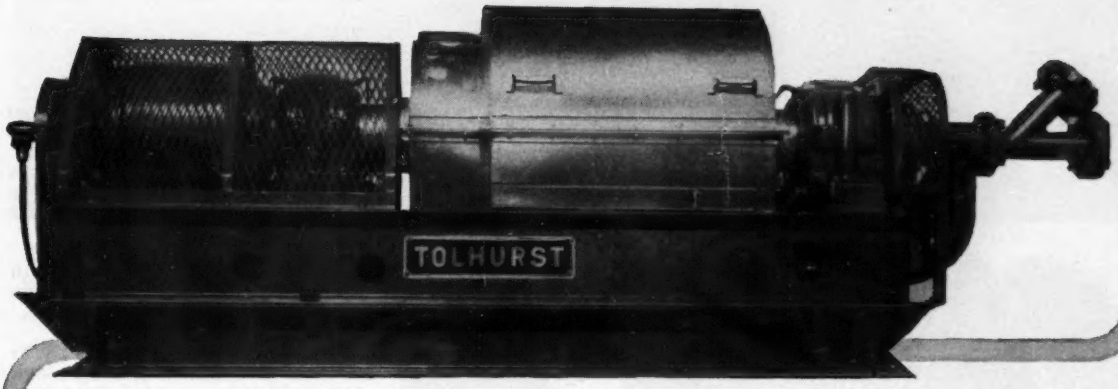

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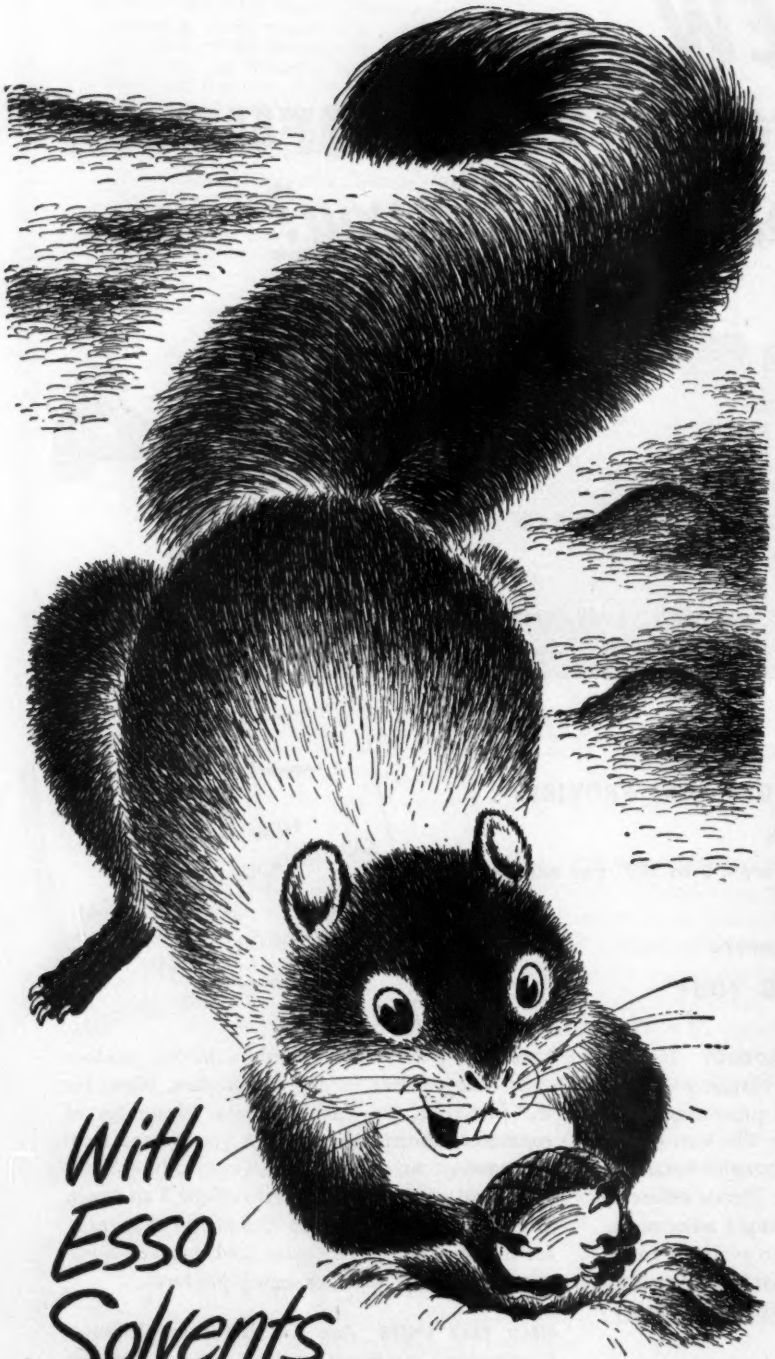

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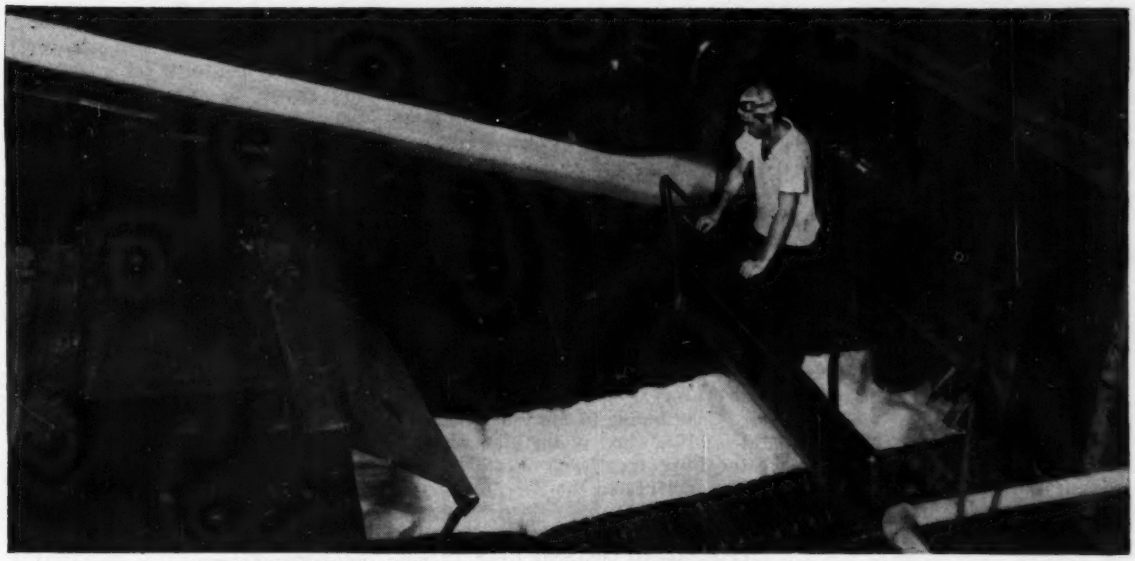

INSULATION "WOOL": Quiet, unglorified, but still top outlet for fibrous glass.

Resin-Glass: More Puff Than Poundage

The plastics industry, as a whole, often incorrigibly optimistic about its future, continues to lose little of its exuberance when describing its rosy potentialities. But one segment at least—reinforced plastics—may be undergoing ballon-pricking. And the pin-wielder could very well be the nation's fiber glass industry.

Not that the barbs will be sibilation-tipped, but many in the industry feel that a down-to-earth evaluation of the fibrous glass business—long over-due—will strip much of the floss surrounding the glamor outlet, peg glass-plastics in its proper, relative, niche.

It was inevitable that in the post-World War II period the glass fiber-resin combination should capture the imagination of an eager, money-laden public. War had been a time of make-do-with-the-old. Hints of fabulous war-born developments gave rise to the notion that plastics would be the building block for a bright, new world. Add to this the excited claims of manufacturers and merchandizers suddenly bereft of the military markets, and the stage was set for the indiscriminate "miracle material" labelling.

As far as the glass fiber industry was concerned, plastics were a natural outlet. For the fibers, serving approximately the same function as the steel in reinforced concrete, made a versatile structural material. To plastics' inherent weather-resistance, easy moldability and colorability, the reinforcement added strength, impact-toughness, dimensional stability.

It was these characteristics that conjured up visions of complete plastic homes—with "plastic" tables, chairs, walls, etc.—that could be washed down with a garden hose; light-weight, plastic-bodied automobiles, cheap enough for each member of the family to have his own run-about; refrigerators, trucks, filing cabinets, bathtubs—the market seemed endless. Some of the more excited proponents actually envisioned the time when steel, aluminum, wood, other building materials would be pushed right out of the field.

The fast-profit lure drew many people into the picture equipped only with few tools, little capital and not much know-how.

The awakening is rude. For despite its overglamorization, reinforced plastic has to face up to some big problems:

1) Lack of rapid fabricating techniques. Building up the layers of glass and resin that go into large reinforced parts is still largely a hand operation.

2) Lack of widespread chemical know-how for existing techniques. Many of the country's 150-odd custom molders are still small owner-managed, with skimpy or no technical or research departments.

3) Dearth of uniform standards for certain reinforced products.

4) General lack of engineering and design data for using reinforced plastics as a more-established material competitor.

For instance, an item usually made of steel could very well be adaptable to plastics construction. But whereas the metal manufacturer has a wealth of historical stress and designing information behind him, the plastics formulator must often rely on a make and test procedure. Result: The nod usually goes to the former material.

Glass Indicator: Though the glass fibers industry is low man on the glass business totem pole (see table), it is by no means small. But one sobering indicator of the relative importance of the plastic reinforcing business is this: Probably only 5-10% is directly involved in the glass-resin combinations. Roughly 70% of the business is tied up in various forms of fiber glass wool, the balance is in textile forms, some of which goes into plastics. These are, of necessity, estimates.

It is not generally recognized that fibrous glass—incidently, that is the generic label gradually being adopted by the trade—is in effect a Janus-type industry, underscored by two fundamental processes; blowing (glass wool) and drawing (glass textiles).

Estimated Glass Use (million dollars)

Glass containers	350.0
Glassware	320.0
Flat glass	300.0
Fiber glass	150.0-200.0

In blowing, molten glass drops are caught by high-speed air or steam jets which are carefully fluttered to produce minute variations in flow. These blasts rip off and hurl tiny fibers of glass to a moving belt (see picture). The wool-like mass is then impreg-

nated with binders, formed into various shapes for use as insulation, or when made into coarser fibers, are set into frames for air filters.

On the other hand, drawing (continuous-filament textile process) has the molten glass flowing through small holes of a bushing at the bottom of a small electric furnace. The converging fibers are then wound on standard yarn spools, which rotate faster than the flow, thus drawing the filaments down to a controlled diameter. The yarn is twisted, plied, woven much like any other textile, is basic in the fabrication of most glass fiber products.

This double-mawed characteristic of fiber glass production, which can gobble one carload of raw material, spew out five carloads of finished products, is the very reason why it is well-nigh impossible to pin-point overall pound-wise statistics on the size of the industry.

But applying the dollar yardstick—traditionally used by the trade to measure output of the major outlet, glass wool—indicates that that segment may be currently running at near a $120 million level, and the textile process output at something under $50 million.

Another not-too-far-off estimate has one producer, Owens-Corning Fiberglas, accounting for nearly 60% of the total.

First significant commercial production of fibrous glass came out of the co-parented* Fiberglas Corp. That company maintained the dominant position until 1946 when it offered to license 181 patents to all financially responsible comers.

Today, O-C-F is still top producer in the field though it has been joined by some six or seven other producers including Libby-Owens-Ford (Toledo), Glass Fibers (Toledo), Pittsburgh Plate Glass (Pittsburgh), Ferro (Cleveland), Glasfloss (New York), Modigliani (Long Island City), International Glass (Los Angeles), Gustin-Bacon (Kansas City).

Aside from these newer names in the glass end of the business, other phases of the industry have been broadened. There are now dozens of big-name textile mills weaving the glass cloth and tapes used in reinforcing, and perhaps 15 or 20 major chemical and paint companies supplying the resins (principally polyester) for plastic reinforcement.

Entrance into the field of larger firms and more stable companies will no doubt assure a healthy continuing growth of glass-laminates despite its present minute—when compared to the whole—status.

* By Owens-Illinois Glass Co. and Corning Glass Works exactly 15 years ago this week.

And that growth, despite the sky-flying impression generated by over-enthusiastic whoop-de-doo, hasn't been too bad over the past few years.

Compared with polyester resin-fibrous glass consumption figures reinforced plastic looks like this:

Consumption in Reinforced Plastics (million lbs.)

Polyester resin		Fibrous glass
7.0	1949	4.0
9.0	1950	5.0
14.0	1951	7.0
19.0	1952	11.0
38.0	1953 (est.)	22.0

Contributing to this year's doubling over 1952's use of the glass fibers is the brisk translucent sheet business. The corrugated panels are finding acceptance in skylights, patios, room partitions, shower doors, other uses. One analysis envisions some 12 million square feet of the material being sold this year. That's equivalent to about 6 million lbs. of resins and glass.

The government, too, is showing more than a passing interest in plastic-glass housings now being used by the Weather Bureau at weather balloon tracking stations from the Arctic to the southland. The domes, of course, are impervious to the elements, won't rust or rot and—most important—permit signals to pass or enter freely between the electronic "brainwork" in the shelter and the high-soaring balloons.

Perking pipemakers' interest too, in rigid glass-strengthened plastic pipe, is bound to build up a lusty competitor to stainless steel and cast iron standbys.

And in the welter of new ideas for uses of fibrous glass products, it is more than likely the reinforced material will eventually step over the threshold into the arena of big-time applications. But the industry itself recognizes the need for some deglamorizing, a new more realistic approach to its marketing.

Says one spokesman: "Today we are past the point of proving up the advantageous properties of reinforced plastics and have reached the stage where emphasis must necessarily be upon engineering and other technological research. The goal: low-cost, high-volume fabrication."

Then, perhaps, some of the earlier pipe-dreams concerning the "miracle material" will, in effect, materialize.

Unfettered Nickel

Starting this week—and for the first time since August 1951—consumers of nickel, nickel silver and nickel-bearing stainless steel will be able to use without restriction all the material they can lay their hands on in a free market, make whatever goods they think the public will buy. And that includes hundreds of nickel-containing products like cooking utensils, plumbing fixtures, precision instruments, furniture, equipment for dairies, offices, plants.

Effective November 1, nickel will become the last of the major metals—as far as the civilian market is concerned—to be shucked of governmental controls. The decontrol action became known last week after Secretary of Commerce Sinclair Weeks directed the recently set up Business and Defense Services Administration to delete nickel from Order M-80—one of the many orders issued by BDSA's predecessor agency, the National Production Authority.

Freeing distribution and use of nickel had been approved earlier by Defense Mobilizer Arthur Flemming in reply to a Commerce Department proposal.

Exception to the Rule: But what sets apart nickel decontrol from previous government unshackling of vitally needed items is the fact that the latest move is not predicated on an "adequate supply" situation. On the contrary, supplies of nickel are expected to fall short of meeting demands from both military and civilian users. And that condition is likely to hold true for a considerable time to come.

Another surprising angle is the government's acquiescence with the long-suffering nickel industry that there is dislocation and hardship under the present allocation and use control, and that continuance of controls "will not serve to relieve or assuage that dislocation and hardship."

In effect, the BDSA action returns to private industry the responsibility for equitable distribution of the available supply after defense requirements are met. And the industry seems willing to assume the headaches attendant to administering a consumer allocation program. Chances are that producers of a wide variety of items—ranging from household gadgets to railroad cars—will besiege nickel producers and distributors for a greater share of the available material (*CW Market Letter, Sept. 5*).

But despite the expected clamor,

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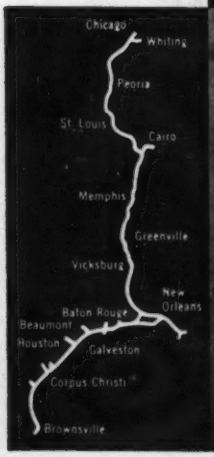

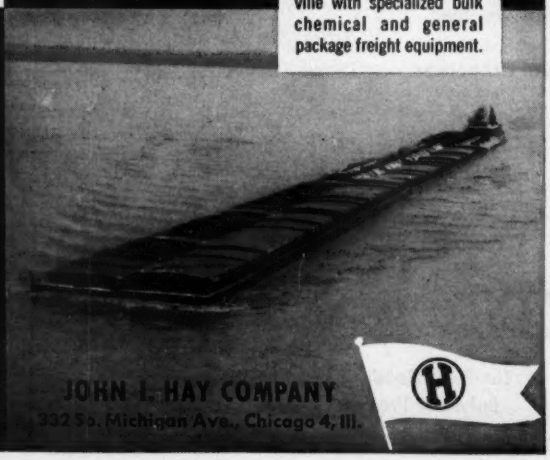

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MARKETS . . . . . .

defense needs will get first crack at available material. For instance:

- Nickel - bearing stainless steel supplies—vital for jet engines, other military uses—will be assured the Defense Department and atomic energy program via the Defense Materials System.
- Washington is launching a plan of regular nickel purchases for the national stockpile.

Implacable Pressures: It was practically inevitable that nickel controls would be removed. Producers, consumers—even some government groups—have long advocated the action. One potent point advanced by the industry is the fact that many imported products made of nickel can be sold in this country while domestic producers are enjoined from using the metal for those items.

And fabricators and nickel-platers in particular have been squeezed by the hamstringing regulations. Commerce Secretary Weeks sums it up like this: "For two years small businessmen have registered justifiable complaint that Government restrictions on nickel were causing them to lose business, with resultant hardship to themselves, employees and customers."

Another agency, the Small Business Administration, also picked up the gauntlet in favor of the platers. It warned that controls were forcing larger firms to do their own nickel plating, pushing out small companies. And, the SBA charged, the threat to the nickel-plating industry "is directly attributable to the severity of the Government regulation".

Some large nickel distributors describe a problem arising in the automotive industry. Auto designers, says one such nickel seller, apparently haven't been aware of the nickel shortage, because they've gone right on dressing up cars with lots of bright metal.

Several platers, therefore, have been trying to meet the demand with inferior quality nickel-plated items. In some cases such products have been coated with only two-thirds as much nickel as is normal.

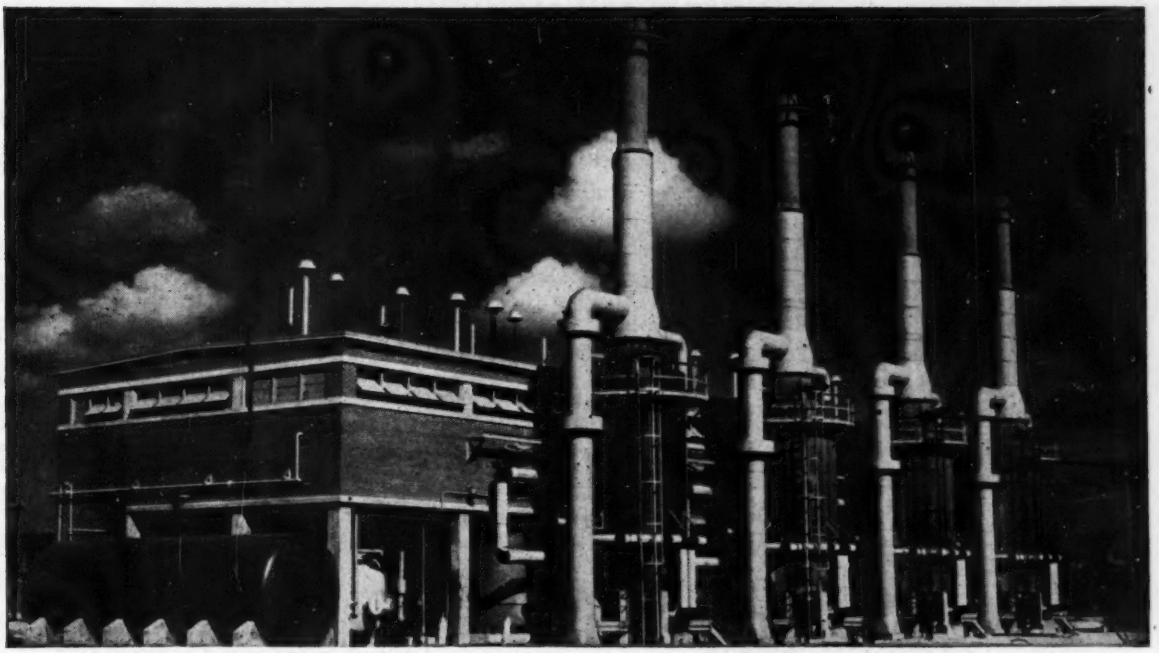
It's a moot question, of course, whether removal of the nickel controls is the hoped-for panacea. But this much is certain: the decontrol action does not mean that there is any increase in the over-all supply of nickel for the civilian market. That can come only from a decrease in military requirements or stepped-up production.

But at least the industry will be relieved of the burden and necessity of filing basketful of forms—NPAF-60, 102, 113, and 114.

DOW

LOOK TO DOW FOR A DEPENDABLE SOURCE OF DIVINYLBENZENE

This versatile monomer is typical of the developments that have made DOW first in monomers for the polymer industries



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Dow suggests many uses for divinylbenzene, including synthetic rubber improvement, ion exchange resins, low pressure laminating resins, potting or casting resins, preparation of special copolymers and styrenated drying oils. Write for more detailed information. Other Dow monomers include vinyl chloride, vinylidene chloride, styrene, alpha methyl styrene and still others in the developmental stage. THE DOW CHEMICAL COMPANY, Midland, Michigan, *Coatings Section, Plastics Department, PL 1375A.*

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Fringe Benefits to Wear

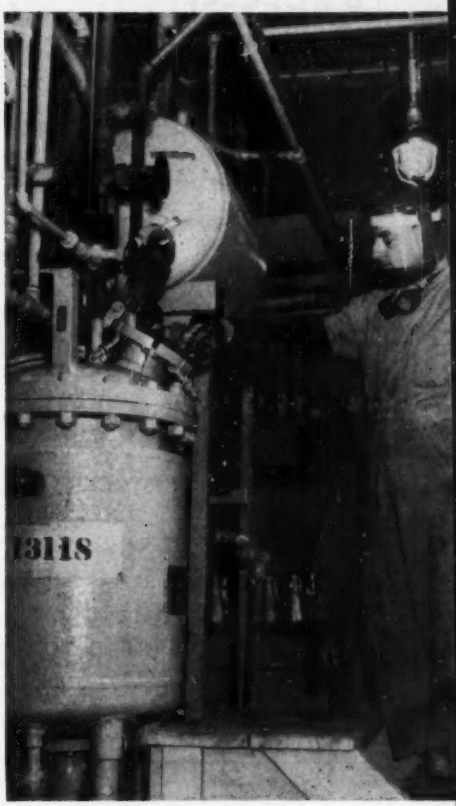
What's the well-dressed chemical plant worker wearing this year? Are his work clothes made of synthetic or natural fibers? Should he pay for them himself, should the company provide them, or should it merely help him to buy them? How far should a company go in providing laundry services? Plant executives responding to CW's survey last week agreed that it's impossible to generalize. They also agreed that deciding what to furnish and what to "subsidize" is a knotty question, the answer to which involves a sizeable bill for industry to pick up.

You can't, of course, put an exact figure on the size of the bill; the accounting practices in most companies don't draw that fine a line on operating expenses. But you can get an idea of the order of magnitude from reasoning like this: in 1952, the collective labor force in the chemical industry put in about 20 million man-hours.* A laundry service providing two changes of clothes per week per worker costs the company about 3¢ an hour for each worker. Thus if half the workers received that type of service, the chemical industry shelled out $300,000 for laundry services alone. Add to that the cost of providing articles of apparel as well as safety equipment—like shoes, "hard hats," glasses and gloves—and you end up with an easy million-dollar tab.

Policy Patterns: One of the facts brought out in the survey is that, because of the diversity of operations, there's no clear-cut pattern among chemical companies on providing clothing and auxiliary items. About all that can be said is that:

- In cases where a company operates more than one plant, the policy is set by the individual plant manager. In larger plants, this policy may vary within different departments.
- In unionized plants, the contract with the union usually stipulates some policy on clothing. In many cases, however, the companies provide items above and beyond those required by the union.
- Wherever safety is a consideration, the company sees to it that the worker is provided with adequate protection. Even the means of doing this varies, though. Take safety shoes as an example. When they're required for the jobs, some companies furnish them, others pay for half the cost, still others help the worker get them at a discount. One plant manager says that the firm only pays half the cost of the safety shoes. He points out the company could easily afford to pay the entire cost but "there's a lot to be said for giving the worker the feeling that he owns a half-interest in them."

* According to the Bureau of Labor Statistics, there was an average of 515,200 production workers employed in the chemical and allied industries in 1952. Average work week for the same industries was 41.2 hours. Production workers include employees engaged in maintenance, shipping, janitorial and other work normally considered part of the labor force.



PLANT WORKER: Build morale, or make him careless?

The hardest companies to assess as far as policy is concerned are, naturally, the big ones. Du Pont, for example, with over 70 plants and ten departments, has a different set of ground rules in each plant. It has even wide variations in policy within the same plant. This, however, is the basic policy of one plant which is typical of a large group:

Anything that remains part of the plant is provided free of cost to the worker. That would include items like helmets, gloves, safety goggles. It also provides safety glasses free. For any items that become the personal property of the employee, it antes up half the cost. In operations where clean clothes are a necessity, it supplies three uniforms and three sets of underwear free, replacements at half cost.

Cyanamid also has a wide variation in policies. In general, however, it supplies any required item free, helps the employee pay the cost of any time that's merely recommended for his job. It supplies laundry service in some plants and at least in one place has its own plant laundry.

Monsanto reports that in only five

Two Sides to the Story

Some of the men queried were ardent advocates of a very liberal policy toward supplying workers with work clothes. Here are some of the reasons why:

- **It cuts down the chance of dermatitis, or at least on cases where workers claim contact with chemicals causes dermatitis.**
- **It's a good public relations tool, makes the plant look better when the workers are decked out in clean uniforms.**
- **It makes the employee happy, may help to give him greater pride in his work and the plant.**
- **It makes his wife happy by cutting the home expenditures for work clothes and laundry.**

On the other hand, there are those who say that it's a subject on which you have to be very careful. Here are their reasons:

- **One thing leads to another, and if you supply workers with an apron, they're likely to start seeking complete uniforms—even underwear.**
- **You have to tread cautiously on setting precedents. If you inaugurate a policy in one plant, you might supply fodder for union demands in another. Before you know it, you're in the clothing business.**
- **In any case, it costs more than its worth. And, they add, the worker soon takes the benefits for granted. Instead of being happy, he'll probably get careless, realizing the clothes are not his property.**

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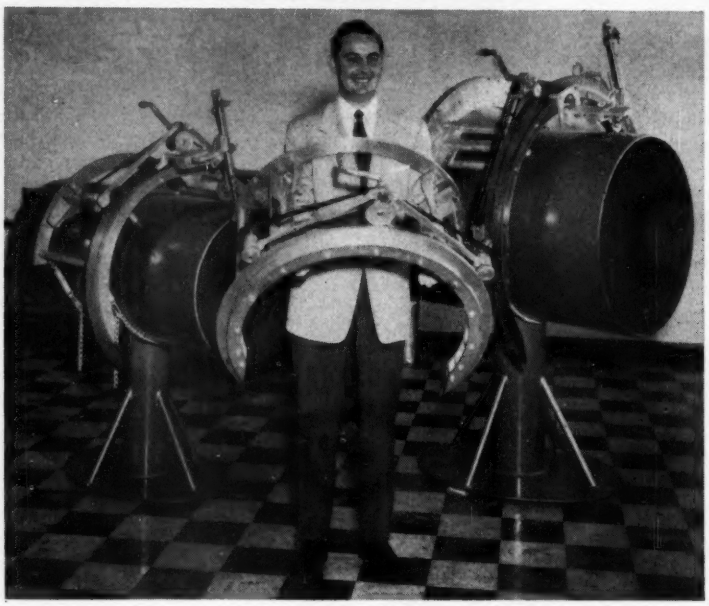

Weighing in at Almost Half

HAPPILY HOLDING the pipe cutter in the picture above is Harry Stallard, sales manager for the H & M Pipe Bevelling Machine Co. (Tulsa). The reason for his smile: the pipe cutter that he's holding in his hands is the firm's standard number-four machine, which used to weigh 123 lbs. By using a new metal manufacturing process, it was able to cut the weight to 66 lbs., thus making for easier handling in the field. Just out in mass-production quantities, the entire new pipe cutter line weighs in at about 60% of the older line.

of its plants does the union contract specify special safety clothing for the worker. In only one plant are general work clothes required, and the contract specifies rain clothes. In ten plants, it supplies clothing and working equipment free, in three others it stands approximately one-third the cost. In most places where clothing is supplied, Monsanto also provides laundry service.

Dow, at Midland, supplies protective clothing wherever there's evidence of hazard or exceptional wear. For workers like welders, who are exposed to flames, it supplies flame-resistant clothes treated with dibasic ammonium phosphate. It launders, sterilizes and re-treats the clothes in its plant laundry. To workers exposed to acid atmosphere, it issues protective clothing at least every ten days or two weeks. Because of static charges in synthetic fibers, it avoids the use of work clothes based on synthetics. In addition to supplying some clothes free, it operates a plant store where employees can buy work clothes at minimum prices.

International Minerals and Chemical Co. is another multi-plant company whose policy varies considerably in different operations. At its new Bonnie (Fla.) plant, it will require workers to wear acid-resistant clothing made of a synthetic. It will share the costs, 50-50, with the workers. The plan is to let the workers do their own laundry unless it finds that they're being washed improperly. In that case, it will either set up a laundry or contract for laundry service.

Dearborn Chemical has a contract with its union that calls for provision of two laundered suits per week to 100 plant employees. This costs the company about $300 a month, or roughly about 2¢ an hour per worker.

National Aluminate has no union contract but has a cooperative labor committee. Early this year the workers decided they'd be willing to set up their own laundry plan on a payroll deduction basis. The company, however, decided it would pick up the bill. Men average two or three changes per week, are encouraged to change often when heated up to protect themselves against cold. The firm figures it spends an average of $1,000 a month for 200

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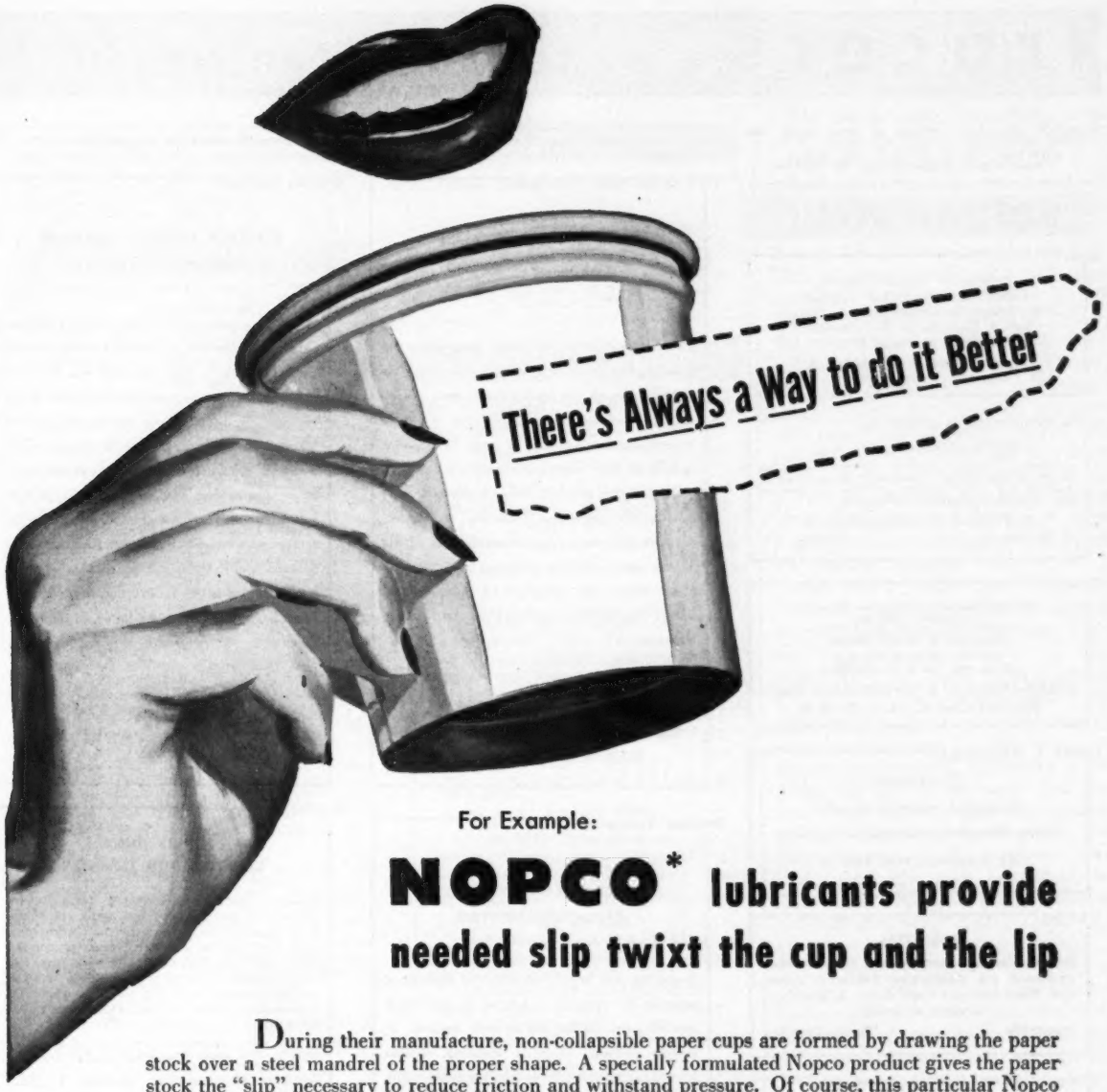

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W 9580 Chemical Week
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PRODUCTION . . . . .

employees, or about 2.5¢ an hour per worker.

On the Average: Elsewhere, however, the average cost of laundry service is considerably higher than Dearborn's or National Aluminate's. In the Southwest, there's general agreement among companies outside services cost 3-3.5¢ an hour per worker. This, of course, will vary with geographical location and number of changes allowed per week as well as the type of garment laundered.

Herman Hoekstra, head of Chicago's Hoekstra Overall Laundry and Supply Co., numbers several large chemical companies and refineries among his customers. He says the cost per worker for coveralls or lab coats is $1.30 a week on a two-change basis. On the same plan, pants and shirts cost $1.50 a week. These, he figures are below the national average.

And just as policy and costs vary, there are opposing schools of thought on the advisability of furnishing workers with free clothing and laundry except as a last resort. One company that has a very liberal policy on laundering uniforms says that workers are now clamoring for the same service on underclothes and socks. They claim the chemicals cause the garments to wear out faster than normal.

Many plant men maintain that the extra services are of no special value. They think the men take them for granted and that they'd get excited only if the firm tried to withdraw them.

The opposing school looks on its policies as enlightened management. It feels that granting extra services is a decided morale builder. Says one: "If I had to give up fringe benefits, that would be the last one."

•

Progress on Pollution: The process industries' war on pollution continues unabated as two companies put the finishing touches on installations, one aimed at reducing air pollution, the other, stream pollution:

• Du Pont has just started up new equipment intended to cut down the amount of air pollutants emanating from its Yerkes plant in Tonawanda, N.Y. Costing $106,000, the equipment was installed (to trap fly ash) from the plant's lone boiler fueled with powdered coal. Says Plant Manager Edward Cooper: "Completion of this latest project should solve the problem of fly-ash emission from the plant." It's the second project completed at the spot in two months to combat air pollution. Total expenditure at the plant now is over $230,000, but Cooper says more money is being

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Philadelphia 3 ..William B. Hannum, Jr., Charles F. Onasch, Architects Bldg., 17th & Sansom Sts., RIttenhouse 6-0670

San Francisco 4.....Ralph E. Dorland, 68 Post St., Douglas 2-4600

Boston 16 .....350 Park Square Building, Hubbard 2-7160

Detroit 26.....856 Penobscot Bldg., Woodward 2-1793

Pittsburgh 22 .....738 Oliver Bldg., Atlantic 1-4707

St. Louis 8 .....3615 Olive St., Continental Bldg., Lucas 4867

PRODUCTION . . . . .

allocated for additional studies.

• Farther west, in Green Bay, Wis., Northern Paper Mills, a subsidiary of Marathon Corp., has completed installation and started operating its Rosenblad reversible-flow quadruple-effect evaporators on the effluent from its paper mill. The evaporation plant, additional boiler capacity and auxiliary equipment represents a $2-million outlay by Northern. "We are putting to work," says President Milan Boex, "the world's largest evaporator devoted to stream improvement." This installation of Rosenblad equipment is the third one by Wisconsin sulfite mills, and the biggest so far.

EQUIPMENT . . . .

Viscous Filler: The Filler Machine Co. (Philmont Club Station, Pa.) has a new semi-automatic filling machine that's said to be capable of handling products up to the viscosity of putty. It works on all size tubes, cans or glass containers, can fill a 5 gal. can with one stroke. The filler is constructed of bronze and steel but for corrosive applications, contact parts can be had in stainless.

•

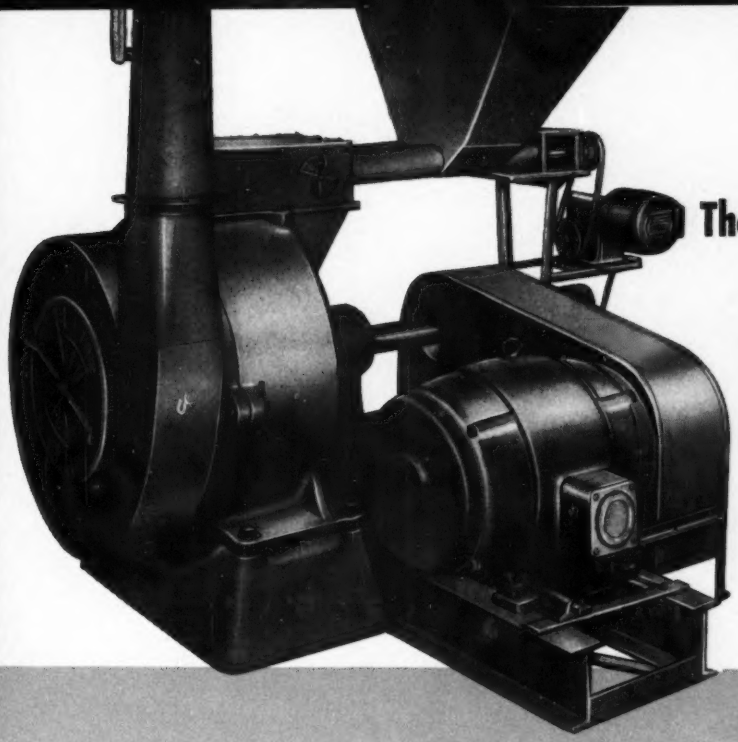
De-sludger: Due for unveiling at the Exposition of the Chemical Industries is an automatic de-sludging machine developed by Centrico, Inc. (Englewood, N.J.). Centrico, which looks on the development as a significant advance in centrifugal separators, says it eliminates the use of valves by an automatic opening and closing bowl to permit continuous discharge of drier sludge.

•

New Alloy: Already unveiled, at the National Metal Exposition and Congress in Cleveland last week, is Beryldur, a low-beryllium-content copper alloy made by the Beryllium Corp. (Reading, Pa.). As Beryllium sees it, the new alloy fills a gap in property ranges existing between high-strength and high-conductivity beryllium-copper alloys. The firm figures it will find a niche in the field of materials engineering, sees it as a potential rival to bronze and brass for some applications.

•

For Mild Corrosives: Better than cast-iron valves, not so good as monel or stainless steel for corrosive service, is the claim made by The Lukenheimer Co. (Cincinnati) for its 125-lb. iron gate valve that features a cast-iron body and bonnet containing 3% nickel. It should do, says the maker, for applications that can be classified as "mildly corrosive."



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SCHUTZ-O'NEILL PULVERIZER

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Here is a proven, automatic and dustless method of pulverizing any grindable material to your desired fineness. For extremely fine grinding and uniform particle size distribution of product the principle of centrifugal impact with air attrition utilized so efficiently by the Schutz-O'Neill "Superfine" Pulverizer has never been surpassed. The centrifugal force recirculates coarse particles within the mill for regrinding. The air classification carries the fine particles out of mill as uniform product of the desired particle size.

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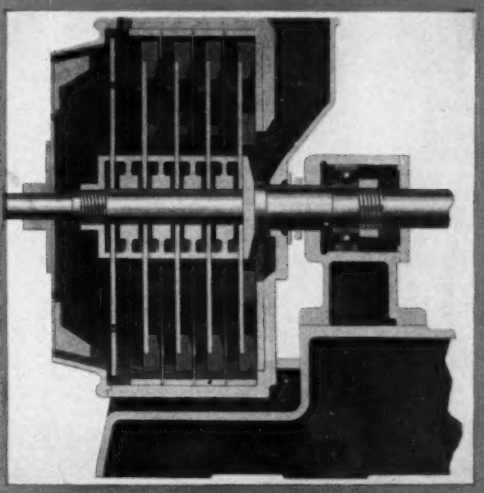
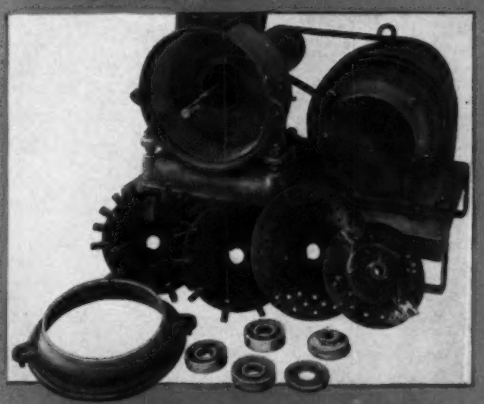


Cross section of the grinding chamber of our "Superfine" Pulverizer showing from left to right the cone plate, perforated mill plate and 4 beater plates with multi-section liner divided by annular rings.



Here is a disassembled mill. Every part separated and assembled—corrugated liners exposed for easy cleaning, exchange or replacement.

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